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**Languaging in cyberspace:
A case study of the effects of peer-peer collaborative dialogue on the acquisition
of English idioms in task-based Synchronous Computer-Mediated
Communication**

by

Xuan Teng

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Applied Linguistics and Technology

Program of Study Committee:
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2015

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DEDICATION

I dedicated this dissertation to my father Jiuwu Teng and my mother Tiantian Huang, whose love, support, and encouragement have kept me moving forward in my doctoral study.

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LIST OF NOMENCLATURE

COCA	Corpus of Contemporary American English
ESL	English as a Second Language
IFD	Idiom-Focused-Dialogue
L1	First language
L2	Second language
LRE	Language-Related-Episode
NNS	Nonnative speaker
NS	Native speaker
SCMC	Synchronous computer-mediated communication
SLA	Second language acquisition
VKS	Vocabulary Knowledge Scale
ZPD	Zone of Proximal Development

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ABSTRACT

Despite the growing interest in examining the link between peer-peer collaborative dialogue and second language (L2) development in recent years (Swain, Brooks, & Tocalli-Beller, 2002), much of the empirical work in this regard focused on face-to-face communication, leaving the operationalization of collaborative dialogue in text-based synchronous computer-mediated communication (SCMC) largely unexplored. In addition, while the bulk of the existing studies concerned L2 learners' incidental learning of the linguistic structures they had difficulty with during their collaboration on communicative tasks (e.g., Watanabe & Swain, 2007), little is known about the connection between collaborative dialogue and second language acquisition (SLA) when L2 learners are faced with preselected language features that are intended for learning. Furthermore, L2 learners' perspectives on collaborative dialogue and its contribution to L2 growth were for the most part ignored in the literature. This study seeks to address these gaps through the examination of English as a Second Language (ESL) learners' collaboration on English idioms that are frequently used in academic discourse. Drawing on sociocultural SLA (Lantolf, 2000; Lantolf & Thorne, 2006) and the concept of "linguaging" (Swain, 2006), it explores how episodes of collaborative dialogue are carried out during SCMC-based dyadic interaction, its association with SLA, and L2 learners' opinions about its effectiveness.

Sixteen intermediate learners of English as a Second language (ESL) enrolled in a college-level academic writing class participated in the current study. They filled out a questionnaire, collaborated on four English idiom learning tasks, completed a pretest and posttests, wrote reflective journals, reflected on their interaction in stimulated recalls, and

responded to survey and interview questions. Within a case study design, this study drew on both quantitative and qualitative observations for data analysis. Specifically, qualitative analyses in the current study were conducted on the basis of questionnaire responses, discourse analysis of chat transcripts, and interview and stimulated recall transcripts. Quantitative measures consisted of descriptive statistics in the form of frequency counts, percentages of each type of communication strategy use and scaffolded assistance, gain scores on posttests, and Likert-scale survey results. Qualitative and quantitative results were triangulated to ensure the thoroughness and accuracy of interpretations.

The results of this study revealed that in working together on the English idiom learning tasks, the participants engaged in the four patterns of dyadic interaction that have been documented in the literature on face-to-face dialogue (Storch, 2002), notably collaborative, expert/novice, dominant/dominant, and dominant/passive. Additionally, the specific patterns that the members of the dyad adopted seemed to be influenced by their perceptions of and attitudes toward the collaborative interaction and the nature of the tasks. Furthermore, during SCMC-based collaborative dialogue, the participants employed a wide array of communication strategies to manage and maintain their online exchanges, which facilitated their socialization into the academic discourse and communities. They also offered each other scaffolded assistance such as the use of contextual information while deciphering the meaning of the target idioms. Through mutual scaffolding, the participants advanced through their Zone of Proximal Development (ZPD) and achieved the transition from other-regulated to self-regulated performance. Finally, compared with the dyads with low posttest scores, the dyads with

high posttest scores on the whole produced longer and more complex episodes of collaborative dialogue that clearly evidenced their cognitive processing of the target idioms, and the participants in general had a positive attitude toward the use of online chat for collaboration and target idiom learning through languaging.

CHAPTER 1. INTRODUCTION

In today's English as a Second Language (ESL) classrooms, it is not uncommon for ESL teachers to incorporate task-based, learner-learner or peer-peer collaboration into second language (L2) teaching and learning. The emphasis on the importance of collaborative work for the development of L2 abilities supports the idea that second language acquisition (SLA) is not limited to individual efforts, but is largely concerned with "the mutuality of learning in activity, and collective human relationships" (Donato, 2004, p. 299-300). While working together on L2 tasks, ESL learners not only accomplish shared goals, but also practice using the target language for social communication. Through task-based collaborative interaction, they are able to pool their linguistic resources together and co-construct L2 knowledge with their partners. Furthermore, in the digital age, with the widespread use of computer-mediated communication (CMC) and Web 2.0 tools, more potential for peer-peer collaborative learning in cyberspace has emerged. ESL learners nowadays have easier and more convenient access to networked technology that can facilitate and increase their interaction with their peers. For this reason, it is important to obtain a clearer picture of how ESL learners collaborate with each other in the online mode, since it may be quite different from its counterpart in face-to-face communication. It is also essential to understand ESL learners' attitudes toward the use of computer technology for peer-peer collaboration, for their viewpoints on the pros and cons reflect the affordances and constraints of the electronic medium, and also help assess the appropriateness of the integration of online exchanges into L2 classrooms. These concerns, to a large extent, are the areas of exploration in the current study.

In this chapter, I first briefly discuss the problems in current research concerning peer-peer collaborative dialogue and point out the inadequacy of empirical studies on its operationalization in synchronous computer-mediated communication (SCMC). Then I introduce the purpose of this study, focusing on the gaps in the existing literature on the connection between collaborative dialogue and SLA that need to be filled through the investigation of the research questions in the current study. After this, I provide a detailed account of the important concepts and terms employed in the exploration of SCMC-based collaborative dialogue and also elaborate on the significance of this study. Finally, I conclude this chapter with a description of the organization of this dissertation.

1.1. Statement of the Problem

Though a relatively new construct, collaborative dialogue has over the decade received considerable attention in second language acquisition (SLA) research informed by Vygotskian sociocultural theory of mind (Vygotsky, 1978, 1987). SLA studies drawing on sociocultural theory of mind, notably sociocultural SLA (Lantolf, 2000b), emphasize the importance of interaction, especially collaborative interaction, to second language (L2) development. A central tenet of sociocultural SLA is that “Individuals obviously do play a role in learning, but what they will eventually be able to do by themselves, they first achieve collaboratively during social interaction” (Ellis & Barkhuizen, 2005, p. 229). With respect to the conversational interaction between L2 learners, sociocultural SLA researchers were mostly concerned with the effects of collaborative dialogue, the kind of dialogue “in which speakers are engaged in problem solving and knowledge building” (Swain, 2000, p. 102), on L2 learning. The linkage between collaborative dialogue and SLA has primarily been examined in light of the key

concepts of sociocultural SLA, namely mediation and internalization. It has been theorized that collaborative dialogue mediates SLA as it enables learners to consciously reflect on their L2 use while expressing their intended meaning (Swain, 1998, 2000) and facilitates individuals' internalization of co-constructed L2 knowledge (Lantolf, 2001; Lantolf, 2006). These claimed benefits of collaborative dialogue to L2 learning have gained substantial empirical support in the literature. Swain, Brooks, and Tocalli-Beller (2002), for example, reviewing research articles published between 1991 and 2000 on peer-peer interaction, made the point that the contribution of the collaborative dialogue that emerged in the writing, speaking, listening, and reading activities to learners' subsequent achievement provided clear evidence for its positive role in promoting SLA.

Despite the above mentioned research efforts, it is important to note that the examination of the relationship between collaborative dialogue and SLA seems to be largely restricted to face-to-face communication. Indeed, the investigation of L2 learners' problem solving and knowledge building thus far has been conducted mainly in relation to their recorded verbal interactions, whereas the operationalization of collaborative dialogue in the electronic medium, especially in text-based synchronous computer-mediated communication (hereafter referred to as SCMC, also known as text-based online chat), has rarely been examined. SCMC allows for real-time discussion among communicators at a physical distance and therefore can offer unique opportunities for learner collaboration. Furthermore, since SCMC has features that strongly resemble oral and written communication, it may be beneficial for learners to improve their L2 abilities through SCMC-based interaction with peers and instructors. As Smith (2003) noted, "synchronous CMC may provide an ideal medium for students to benefit from interaction

primarily because the written nature of computer-based discussions allows a greater opportunity to attend to and reflect upon the form and content of the message, while retaining the conversational feel and flow as well as the interactional nature of verbal discussions” (p. 39). Additionally, SCMC has been purported to increase the quantity and quality of L2 production, ensure more equal participation, reduce communication anxiety, and improve students’ attitudes and motivation toward L2 learning (Beauvois, 1992; Böhlke, 2003; Kelm, 1992, Kern, 1995; Satar & Ozdener, 2008). Warschauer, 1996). In a word, SCMC serves as “a potentially useful tool for collaborative language learning” (Warschauer, 1997, p. 477). While the connection between SCMC-based interaction and SLA was often examined through the lens of the interaction account of SLA (Long, 1983b, 1996), namely how the negotiation of meaning caused by communication breakdown in cyberspace resulted in the development of learners’ L2 competence (e.g., Pellettieri, 2000; Shekary & Tahririan, 2006; Smith, 2003), relatively little has been investigated about the link between SCMC-based collaborative dialogue and L2 growth. As Warschauer (1997) pointed out, SCMC “creates the opportunity for a group of people to construct knowledge together, thus linking reflection and interaction” (p. 473). If collaborative dialogue is concerned with L2 learning that stems from learners’ joint reflections on their L2 use during collaborative interaction, then the examination of how learners “learn language, learn about language, and learn ‘through’ language” during SCMC (Warschauer, 1997, p. 471), a “text-based, hybrid between text and oral communication” (de la Fuente, 2003, p. 51), and its effects on SLA seems cogent and appealing. The paucity of empirical inquiry in this regard, however, is evident.

Another motivation for this study arises from the few areas that current studies on collaborative dialogue have often overlooked. The most important one is the scarcity of data concerning the effectiveness of collaborative dialogue on L2 vocabulary learning. In contrast with the extensive investigation of the influence of collaborative dialogue on learners' writing performance (e.g., Elola & Oskoz, 2010; Lee, 2008; Liang, 2010; Storch, 2011; Sun & Chang, 2012), less research has been done on how collaborative dialogue aids L2 vocabulary acquisition, despite the fact that discussions around unfamiliar words were found to be more prevalent than other linguistic structures during collaborative interaction (e.g., Leiser, 2004; Williams, 1999, 2001). Furthermore, even in existing studies that examined the relationship between collaborative dialogue and vocabulary learning, the focus was generally on the solutions to the lexical difficulties that learners had encountered in their spontaneous speech (e.g., McDonough & Sunitham, 2009) or completion of meaning-focused, communicative tasks (e.g., Swain & Lapkin, 2002). In other words, they were concerned with focus on form instruction targeted at incidental learning, where "attention to form in the context of a communicative activity is not predetermined but rather occurs in accordance with the participants' linguistic needs as the activity proceeds" (Ellis, 2006, p. 100). It is therefore not clear the effectiveness of collaborative dialogue for SLA in terms of focus on form instruction of which the goal is "learning some pre-determined and explicitly presented target structure" (Ellis, 2008, p. 872). The use of predetermined linguistic structures for focus on form instruction, however, has been found to be equally effective for L2 growth (Williams & Evans, 1998) and is a widely adopted approach in L2 teaching and learning. As far as lexical acquisition is concerned, Blake (2011) even made the point that "developing an adequate

L2 lexicon will not happen without some form of explicit instruction” (p. 22).

Researchers’ marginalization of ESL learners’ joint problem-solving and knowledge-building when they are intentionally directed at preselected L2 structures would nevertheless lead to an incomplete understanding of the contribution of collaborative dialogue to SLA.

Additionally, although in theory sociocultural SLA foregrounds the contextual situatedness of L2 development through the examination of how collaborative interaction is influenced by individual factors such as “learners’ experiences and motives for language learning and their linguistic, cognitive, and affective conditions” (Lee, 2004, p. 83), in reality most studies concerning collaborative dialogue relied almost exclusively on the analysis of face-to-face or chatroom transcripts, without any reference to the connection between learners’ attitudes towards and perceptions of the way they interact with each other. A few studies (e.g., Watanabe, 2008; Watanabe & Swain, 2008) did touch on the situated nature of collaborative interaction; however, they were conducted in face-to-face situations and thus shed little light on SCMC-based collaboration.

Finally, learners’ perspectives on SCMC-based collaborative dialogue are essentially ignored in the literature. As some researchers (e.g., Lee, 2004; Storch, 2007; Watanabe, 2008) noted, not all learners appreciated the value of pair work, and their viewpoints on the usefulness of the collaborative interaction they had experienced for their L2 learning was closely associated with the characteristics of peers, the nature of the tasks, as well as the mode of communication. This is compounded by the fact that the potential benefits of SCMC for SLA were for the most part claimed by researchers rather than supported by learners’ voices. More empirical evidence, as a result, is needed to

gauge the degree to which learners perceive their collaboration as beneficial to their L2 learning.

1.2. Purpose of the Study

The current study seeks to address the aforementioned problems through the examination of the effects of SCMC-based collaborative dialogue on the development of L2 lexical knowledge. It employed form-focused tasks that incorporate English idioms, a kind of linguistic structure that does not normally occur in ESL learners' oral and written production, as the specific learning targets. Within a case study design, it investigated how collaborative dialogue is carried out in SCMC and its association with ESL learners' comprehension and retention of the meaning of the target idioms, along with learners' impressions of the effectiveness of SCMC-based collaborative interaction for their task completion and L2 vocabulary learning. In particular, this study examined 1) the patterns of dyadic interaction that learners engage in when solving idiom related problems together through SCMC-based collaborative dialogue, 2) the social situatedness of SCMC-based collaborative dialogue, namely the communicative strategies that learners utilize to manage and maintain their collaborative interaction, 3) the collective scaffolding evidenced in SCMC-based collaborative dialogue, that is, the way learners decipher the meaning of the target idioms through the provision of scaffolded assistance, 4) the characteristics of collaborative interaction that dyads with high and low posttests scores exhibit and the connection of these characteristic to their learning of target idioms, and 5) learners' perspectives on SCMC-based collaborative interaction with peers.

This study departs from previous research on collaborative dialogue in several ways. The most important one involves the choice of methodology. Although Swain

coined the term collaborative dialogue in light of Vygotskian sociocultural theory of mind, most of her studies on this topic seemed to focus on the quantification and categorization of the episodes of collaborative dialogue that emerged. Without a fine-grained, qualitative analysis of the nature of collaborative dialogue, it appears virtually impossible to know how the key concepts in sociocultural SLA such as mediation and scaffolding are embodied during peer-peer conversational exchanges. It is also true that “sociocultural approaches prioritize qualitative research methodology and pay close attention to the settings and participants in interactions” (Foster & Ohta, 2005, p. 403). This study thus adopts a case study approach, which is advantageous in revealing the situated and dynamic L2 learning process through multiple sources of evidence and in-depth analysis (Dörnyei, 2007; Duff, 2008), for the qualitative investigation of ESL learners’ collaborative efforts to solve problems related to and construct their own knowledge about the target idioms.

An additional advancement of this study relates to the incorporation of learners’ attitudes and perceptions into the analysis of their collaborative interaction. In the majority of existing studies that examined the relationship between collaborative dialogue and SLA, conclusions about the process and product of peers working together were often drawn primarily on the basis of the analysis of chat transcripts. However, as Watanabe (2008) aptly noted, a sole focus on learners’ discourse as indicative of their linguistic behavior during peer-peer interaction may limit a full investigation of the complex nature of collaboration since it ignores the possible influence of learners’ powerful emotions and agencies. This point aligns with previous findings reported in the literature on face-to-face collaboration (e.g., Storch, 2004; Dobao, 2012; Watanabe, 2008)

indicating that the way learners interacted with each other was in large part shaped and reshaped by their inner thoughts and feelings. Given the importance of how learners perceive their interaction to the way they enact collaborative dialogue, this study complements the analysis of chat transcripts with introspective data, including stimulated recall comments and reflective journal entries that reflect the participants' attitudes and perceptions during the completion of the English idiom learning tasks, to give a richer and more comprehensive picture of the factors that impact how collaborative dialogue is carried out in SCMC.

A third distinction between previous research regarding collaborative dialogue and this study pertains to the closer examination I made of learners' use of collaborative dialogue for both socialization and language learning during SCMC-based interaction. While prior work was more concerned with the description of the linguistic properties of instances of collaborative dialogue (for example, the distinction of grammatical, lexical, and orthographic LREs), the current study leans towards their social and cognitive functions. As Kramsch (2002) pointed out, in the field of SLA, there has been "a common dissatisfaction with the traditional separation between language acquisition and language socialization" (p. 4). Kitade (2009) added that, "Research within the sociocultural framework is based on an understanding that socialization and language acquisition cannot be separated from the interactive linguistic contexts in which they occur" (p. 145). This is supported in the data from extant studies conducted from the sociocultural SLA perspective (e.g., Peterson, 2009; Lee, 2008; Oskoz, 2009) that in the bulk of the episodes of collaborative dialogue surrounding unfamiliar L2 features, learners not only utilized a variety of communication strategies to manage and maintain

their interactional processes, but also assisted each other's participation in peer-peer collaboration and the creation of new knowledge. On this basis, this study explores in detail the utilization of communication strategies and the provision of scaffolded assistance during SCMC-based collaborative dialogue in order to demonstrate how ESL learners "use the language as a cognitive tool for socialization and also use social interaction as a tool for cognitive growth" (Lee, 2004, p. 84).

The final area in which this study goes beyond previous studies on collaborative dialogue includes the incorporation of the microgenetic analysis of ESL learners' target idiom knowledge development. In existing studies examining the connection between collaborative dialogue and SLA, L2 gains were evaluated merely on the basis of the scores that learners had obtained on the tailor-made posttests. However, as some researchers suggested, the assessment of L2 development, from the perspective of sociocultural SLA, needs to also take into account their microgenetic growth; that is, their "cognitive development that occurs moment by moment in social interaction" (Ohta, 2000, p. 54). The microgenetic approach "traces a task activity from its social origins through historical processes to task completion" (Platt & Brooks, 2002, pp. 373). It focuses on "the duration of the activity from its origin and its evolution to its end" (ibid, p. 374), and therefore enables researchers to "grasp the process in flight" (Vygotsky, 1978, p. 68). To provide the microgenetic account of ESL learners' target idiom knowledge development, evidence from both collaborative interaction and individual reflection is scrutinized. Particularly, the microgenetic analysis of chat transcripts is used to indicate the learning of the target idioms during collaborative interaction, along with individual reflection conducted on the data gathered from stimulated recall comments and posttest

responses. Stimulated recalls in the current study, accordingly, in addition to their use for eliciting ESL learners' opinions about their interaction with peers, are also employed for revealing their understanding and comprehension of the definitions. This use of introspective data aligns with Swain's (2006) claim that learners' verbalization of their thoughts leads to cognitive change, which constitutes L2 learning and growth. As such, "Research tools such as think alouds and stimulated recalls should be understood as part of the learning process, not just as a medium of data collection" (p. 110).

1.3. Basic Concepts: Mediation, Scaffolding, ZPD, & Internalization

Prior to the examination of the key construct in the current study, notably peer-peer collaborative dialogue, it is beneficial to describe and define several of the concepts that are of paramount importance to the data interpretation. The first one is the concept of mediation. According to Lantolf and Thorne (2006), "Mediation is the process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate (i.e., gain voluntary control over and transform) the material world or their own and each other's social and mental activity" (p. 79). Donato and McCormick (1994) further pointed out that classroom L2 teaching and learning are mediated by artifacts, including "the textbook, visual material" (p. 456), and social interaction such as "classroom discourse patterns, opportunities for second language interaction, types of direct instruction, or various kinds of teacher assistance" (ibid). In the case of the current study, ESL learners' gains in their knowledge about the meaning of the target idioms are also mediated through the use of artifacts and social interaction. Particularly, in collaborating on the English idiom learning tasks, ESL learners focus on and notice the linguistic properties of the target idioms. Their joint reflection on the meaning, form, and use results in a deeper

cognitive processing and provides the basis for the learning of the preselected L2 features. Furthermore, in discussing with their peers about the meaning of the target idioms, ESL learners are involved in the process of exchanging ideas, negotiating on and debating over the correct use of the L2, and co-constructing their target idiom knowledge. Throughout the study, they draw on the L2 to regulate their thoughts and direct their cognitive activities, which in turn mediates their comprehension and retention of the meaning.

Other concepts that are pertinent to the data interpretation of the current study concern the constructs of peer-peer or collective scaffolding and Zone of Proximal Development (ZPD). As Donato (1994) described it, scaffolding denotes the situations “in social interaction a knowledgeable participant can create, by means of speech, supportive conditions in which the novice can participate in, and extend, current skills and knowledge to higher levels of competence” (p. 40). In this study, neither member of the ESL dyad had prior knowledge about the meaning of the target idioms. Nevertheless, they brought to the collaborative interaction their own interpretations of the contextual information and contributed their individual expertise in the L2 to the completion of the tasks. In playing the role of both the expert and novice learner, they have undergone the process of collective scaffolding, during which “the speakers are at the same time individually novices and collectively experts, sources of new orientations for each other, and guides through this complex linguistic problem solving” (ibid, p. 46). Furthermore, the collective scaffolding involved in the instances of collaborative dialogue around the target idioms promotes the creation of ZPD, notably “the distance between the actual development level as determined by independent problem solving and the level of

potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). In offering and receiving scaffolded assistance during collaborative dialogue, the two members of the dyad constructed target idiom knowledge that they might not have been able to obtain if they had worked independently. As a result, the collaborative work involved in the current study aided them in advancing through their own ZPD and mediated their L2 learning.

A final concept that is important in the examination of collaborative dialogue in the current study is the notion of internalization. According to Lantolf (2006), internalization is “the process through which members of communities of practice appropriate the symbolic artifacts used in communicative activity and convert them into psychological artifacts that mediate their mental activity” (p. 90). Ellis (2008) further maintained that “internalization involves both increased control over L2 forms and functions and also, crucially, the ability to use the L2 to regulate thought” (p. 533). Throughout this study, ESL learners transferred the target idiom knowledge co-constructed during their collaborative interaction to their own L2 repertoires, and thus bridged the transition from other-regulated to self-regulated performance. In expanding their understanding of the definitions of the target idioms within the episodes of collaborative dialogue, they developed and enhanced their abilities to apply them to new contexts.

1.4. Significance of the Study

The findings of this study contribute to research on collaborative dialogue by revealing the patterns of dyadic interaction in SCMC and the factors influencing the adoption of these patterns so that whether and how learners can be oriented to the

collaborative patterns can be better understood. This is important given the proliferation of international or intercultural telecollaboration in which SCMC serves as the main conduit for communication in recent years (e.g., Basharina, 2007; Jin, 2013).

Additionally, while previous studies on collaborative dialogue focused on incidental learning of L2 structures selected by the students (e.g., Swain & Lapkin, 2002) or intentional learning of everyday humorous language (e.g., Tocalli-Beller, 2005), this study concerns collaborative dialogue elicited by form-focused academic tasks targeted at the learning of linguistic items that are predetermined by ESL instructors. This is useful for assessing the degree to which learners' needs could be addressed by teacher intervention. Furthermore, the scaffolded assistance evidenced in the collaborative interaction provides a glimpse into the cognitive activities that learners engage in when processing English idioms so that ESL instructors can be better informed of the teaching methods that may facilitate the learning of idioms as formulaic language. Finally, learners' perspectives on their online exchanges offer additional insight into the strengths and issues concerning the incorporation of networked technology into L2 teaching and learning.

1.5. Organization of the Dissertation

This dissertation consists of five chapters. In this first chapter, I have discussed the limitations of existing research concerning collaborative dialogue, the purpose of the current study, the important terms and concepts employed for the empirical examination of SCMC-based peer-peer collaborative dialogue, and the significance of this study. In the second chapter, I review prior literature on SLA through dyadic interaction, the construct of collaborative dialogue, its relationship with SLA and L2 vocabulary

learning, and its operationalization in SCMC. I also present findings from previous studies that focus on the corpus-based analysis of English idioms and the teaching and learning of English idioms. In Chapter three, I describe the case study approach guiding the investigation of the research questions in the current study, and provide the details of the research context, participants, case selection and sampling, materials, as well as data collection procedures and analysis. In Chapter four, I report the results of the analysis as they pertain to the research questions and offer a discussion of the findings. I conclude the dissertation in Chapter five by summarizing the main findings, identifying the limitations and implications of the current study, and offering suggestions and recommendations for future studies.

CHAPTER 2. LITERATURE REVIEW

In Chapter 2, I review the literature in the field and provide a thorough account of the theoretical and empirical underpinnings for the examination of the SCMC-based collaborative dialogue. In particular I focus on four of the areas that are important and relevant to the current study: second language acquisition (SLA) through dyadic interaction, collaborative dialogue, corpus-based analysis of English idioms, and the teaching and learning of English idioms. For SLA through dyadic interaction, I examine how the constructs of focus on form and noticing are identified and described during the input period (early 1980s-mid 1990s) and the output period (mid 1990s-present), and elaborate on how this study follows the principles of focus on form and noticing. For collaborative dialogue, I provide details concerning its definition, its relationship with SLA, factors influencing its production, its effects on L2 vocabulary learning, and SCMC-based collaborative dialogue. The comprehensive review of existing studies revealed a relative scarcity of published empirical work on the operationalization of collaborative dialogue in a SCMC environment and its connection to L2 lexical development, thus creating a niche for the current study.

The literature on the corpus-based analysis of English idioms and the teaching and learning of English idioms provide justification for the production of the pedagogical materials in the current study. For the former, I focus on the information that corpus linguistics offers about the formal and functional variation of English idioms in spoken and written academic discourse, and suggest that naturally occurring discourse allows L2 learners to gain further insight into the differences between the canonical and non-canonical forms and the functions of English idioms. For the latter, I discuss the

difficulties of learning English idioms, the pros and cons of teaching receptive and productive knowledge of English idioms, and the rationale for the selection of the target idioms in the current study. After identifying the gaps in the literature and specifying the theoretical and empirical frameworks that help situate the current study, I present the five research questions that guide the examination of SCMC-based collaborative dialogue.

2.1. Second Language Acquisition through Dyadic Interaction

Over the past few decades, dyadic interaction has been extensively examined within the field of applied linguistics for its connection to SLA. A perusal of the extant research literature on the relationship between dyadic interaction and SLA makes it clear that much of the discussion about this topic has been boiled down to the contribution of focus on form and noticing the gap to the development of L2 learners' interlanguage. This study, which investigated English as a Second Language (ESL) learners' acquisition of English idioms through their collaborative interaction, similarly focused on these two areas. In this section, I elaborate on this point by first providing a historical account of the examination of the connection of focus on form and noticing the gap to SLA in the existing literature on dyadic interaction, and then illustrating how the current study fits into and adds to this line of research.

2.1.1. The input period (early 1980s-mid 1990s)

The inquiry into dyadic interaction can be roughly divided into two periods: the input period (early 1980s-mid 1990s) and the output period (mid 1990s-present). Each period is marked by the utilization of different constructs when describing the occurrence of L2 learning during the interaction process and distinct theoretical perspectives for the account of how dyadic interaction provides opportunities for SLA: while studies

conducted during the input period attempted to reveal “how learners may benefit from the linguistic information they *receive*” (Mackey, 2007, p. 2) from the negotiation of meaning between native speakers (NSs) and non-native speakers (NNSs) through the lens of interactionist theories; studies of the output period tended to draw on sociocultural SLA for the investigation of learners’ use of language for co-constructing and internalizing knowledge about L2 within Language-Related-Episodes (hereafter referred to as LREs) during NNS-NNS interaction. Detailed information regarding each period is provided below.

Learners’ attention to L2 forms was initially not emphasized during the input period since a prevailing idea of the association between dyadic interaction and SLA was that linguistic input that is comprehensible to learners facilitates SLA. Well-known researchers stressing the importance of the comprehensibility of input to L2 development include Krashen (1982, 1985) and Long (1983a, 1983b, 1985). In particular, Krashen’s (1982, 1985) Input Hypothesis posited that learners’ access to input that is somewhat above their current L2 levels is a prerequisite for their gains in the target language, and a variety of linguistic (for example, the use of simplified lexical and syntactic structures) and non-linguistic (for example, the reliance on contextual information) measures can be taken in order to aid in learner comprehension of such input. Long (1983b), agreeing with Krashen, described comprehensible input as the incoming messages that include “forms (lexis, morphology, syntactic constructions) that are one stage beyond the learner’s current stage of interlanguage development” (p. 377). However, unlike Krashen, he contended in the early version of his Interaction Hypothesis that comprehensible input could be achieved in interactive situations through NSs’ interactional adjustments to

NNSs. Nevertheless, both researchers conceded that comprehensible input serves as the positive evidence of L2, that is, “models of what is grammatical and acceptable” (Long, 1996, p. 413), and is both a necessary and sufficient condition for SLA.

This emphasis on the primacy of comprehensible input in assisting L2 growth soon met with many challenges, most of which centered on its lack of concern for learners’ role in comprehending linguistic input (Gass, 1988, 1997), the insufficiency of comprehensible input for the achievement of native-like fluency (Swain, 1985), and the negative effects it might have on learners’ attentional capacity (Faerch & Kasper, 1986). In face of these challenges, Long (1996), in his updated Interaction Hypothesis, acknowledged the contributions of learners’ attention to L2 forms to SLA by positing that, “negotiation of meaning, and especially negotiation work that triggers interactional adjustments by the NS or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways” (p. 451- 452). It is now widely accepted that comprehensible input is “necessary but not sufficient for L2 development” (Yilmaz, 2011, p. 116), and the focus of research concerning input and SLA has thus shifted from the quality, or more specifically the comprehensibility of input, to how learners’ focus on form is achieved during dyadic interaction.

Focus on form, as Long and Robinson (1998) describes it, refers to “how focal attentional resources are allocated” (p. 23), and according to Doughty and Williams (1998), there are two definitions of focus on form, one being more theoretical and the other being operational. The theoretical definition stated that “*Focus on form*...overtly draw[s] students’ attention to linguistic elements as they arise incidentally in lessons

whose overriding focus is on meaning, or communication” (Long, 1991, p. 45-46). The operational definition, on the other hand, assumed that “*Focus on form* often consists of an occasional shift of attention to linguistic code features – by the teacher and/or one or more students – triggered by perceived problems with comprehension or production” (Long & Robinson, 1998, p. 23).

These two definitions together identified two features that are highly indicative of focus on form. First of all, they conveyed the idea that focus on form is a balance of focus on forms and focus on meaning. Focus on forms indicates “a predominant, often exclusive, orientation to a series of isolated linguistic forms presented one after the other, as in a structural syllabus, with meaning and communication relegated to the sidelines” (Long, 1996, p. 429); focus on meaning, on the contrary, is associated with comprehensible input maintaining that learners’ comprehension of input, without instruction on L2 forms, is sufficient for SLA. While learners’ attention to the formal aspect of the target language does not seem to co-exist with their attention to the content of the message in either focus on forms or focus on meaning, their co-occurrence is clearly recognized in focus on form, for “the fundamental assumption of focus-on-form instruction is that meaning and use must already be evident to the learner at the time that attention is drawn to the linguistic apparatus needed to get the meaning across” (Doughty & Williams, 1998, p. 4). In acknowledging that learners’ attentional resources can be allocated simultaneously to the form and the meaning of input, focus on form transcends focus on forms and focus on meaning in that “*focus on form* entails a focus on formal elements of language, whereas focus on forms is *limited* to such a focus, and focus on meaning *excludes* it” (ibid).

In addition, the claim that focus on form is mainly caused by comprehension problems arising from dyadic interaction suggests the relevance of examining its operationalization in relation to negotiation of meaning. Long (1996) defined negotiation of meaning as “the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor’s perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content, or all three, until an acceptable level of understanding is achieved” (p. 418). Pica (1994) described negotiation of meaning in more detail as the interactional exchanges in which “a listener requests message clarification and confirmation and a speaker follows up these requests, often through repeating, elaborating, or simplifying the original message” (p. 497). Gass and Varonis (1985) and Varonis and Gass (1985) further specified the structure of the negotiation of meaning routines as being comprised of a trigger, an indicator, a response, and an optional reaction to response.

It has been argued that while engaging in negotiation of meaning, not only do learners receive interactionally modified and thus comprehensible input, but they also attend to the formal properties of their utterances through their interlocutors’ corrective feedback such as recast (Long, 1996), confirmation check (Young & Doughty, 1987) and repetition (Lyster & Ranta, 1997). Since corrective feedback “preserve[s] the learner’s intended meaning” (Long & Robinson, 1998, p. 23), it provides learners with either explicit or implicit negative evidence (as opposed to positive evidence in comprehensible input) with regard to the problematic areas in their interlanguage, and thus directs their attention to the L2 forms they need to express their intended meanings. The effectiveness of focus on form during negotiated interaction was soon confirmed in a number of studies

showing a positive relationship between negotiation of meaning and L2 gains (e.g., Ellis & He, 1999; Ellis, Tanaka, & Yamazaki, 1994; Gass, Mackey, & Pica, 1998; Gass & Varonis, 1994; Mackey, 1999), and at the same time, communication tasks that involve information gap in input such as jigsaw tasks were purported to promote focus on form and consequently SLA through negotiation of meaning during dyadic interaction (Pica et al., 1993).

Another key concept associated with focus on form relates to the importance of noticing to SLA. Schmidt (1990, 1994, 2001) described the construct of noticing in his Noticing Hypothesis as learners' conscious attention and awareness to input, and he connected noticing to focus on form evidenced in negotiation of meaning through noticing the gap (Schmidt & Frota, 1986), the interactional modifications that "draw the learners' conscious attention to the linguistic properties of the input and how these differ from the properties of the learners' output" (Ellis, 2003, p. 48). Schmidt (1994) asserted that noticing the gap is "the necessary and sufficient condition for the conversion of input to intake for learning" (p. 17), and his claim about the importance of noticing to L2 learning, that is, "people learn about the things they attend to and do not learn much about the things they do not attend to" (Schmidt, 2001, p. 30) was also corroborated by Long and Robinson (1998), who claimed that noticing is "the intended outcome of *focus on form*" (p. 24).

2.1.2. The output period (mid 1990s-present)

Compared with the input period, the examination of focus on form and noticing in the output period seemed to be conducted mainly in relation to learners' L2 production or target language use, and Swain's (1985, 1995) Comprehensible Output Hypothesis

provided the basis for the account of the occurrence of SLA through output during dyadic interaction. According to Swain, in being “pushed” to produce L2 output, learners, in three ways, engage in focus on form. The first one is a transition from semantic to syntactic processing of L2. Swain (1998) argued that unlike the comprehension of input, in attempting to produce output, learners are more likely to attend to their linguistic problems as they are expressing their intended meaning using the correct and appropriate L2 forms. Or, put differently, “learners...can fake it, so to speak, in comprehension, but they cannot do so in the same way in production” (Swain, 1995, p. 127). The syntactic processing involved in L2 production is inextricably linked to focus on form and noticing the gap since it raises learners’ awareness of “not only the target language form itself but also that it is different from their own interlanguage” (Swain, 1998, p. 66). The second one is hypothesis formulation and testing, that is, learners’ output is the evidence of their conceptualization of how L2 forms work. The last one concerns metatalk in which “learners use language to reflect on language use” (Swain, 1998, p. 68). Swain made the point that metatalk signals learners’ conscious focus on form as they proactively reflect on their own or their interlocutors’ L2 use and is also indicative of SLA simply because “in metatalk, noticing, hypothesis formulation and testing (cognitive problem solving), and other learning processes (e.g., comprehending) may be available for inspection” (ibid, p. 69).

In line with this shift of focus on form from input to output, language-related-episodes (LREs) emerging during NNS-NNS or learner-learner interaction in which “students talk about the language they are producing, question their language use, or other or self-correct” (Swain, 1998) has received the most attention in SLA studies in the

output period (e.g., Leeson, 2004; Swain & Lapkin, 2002; Williams 1999, 2001). LREs originated from the metatalk function of output, and were later adopted by Swain (1997, 2000) as the operationalization of the construct of collaborative dialogue, the dialogic interaction in which “learners work together to solve linguistic problems and/or co-construct language or knowledge about language” (Swain et al., 2002, p. 172) informed by sociocultural SLA theories. LREs were deemed a type of preemptive (rather than reactive as in negotiation of meaning, see Doughty & Williams, 1998) focus on form which “arose in the context of task-based lessons where either the students or the teacher initiated attention to form in the absence of any attested learner error” (Ellis, 2008, p. 811). Preemptive focus on form was thought to be more relevant to learners’ communication needs and therefore more engaging, and also more facilitative to L2 learning (Ellis, Basturkmen, & Loewen, 2001; Ellis, 2008). Additionally, LREs were suggested by Swain (2000, 2001) as the site in which noticing can be observed since each LRE documents the dyads’ cognitive process in which “a language item is initiated, noticed, discussed, and resolved” (Shekary & Tahririan, 2006, p. 56). Meanwhile, communication tasks that elicit learners’ joint reflection on their output during collaborative (instead of negotiated) interaction such as the dictogloss task (Swain, 1998; Swain & Lapkin, 2002) were commonly employed to promote conscious focus on form and increase noticing of problematic L2 forms in their existing interlanguage.

2.1.3. Focus on form and noticing the gap in the learning of English idioms

As the review of prior research work on dyadic interaction showed, both the input and output period were concerned with focus on form and noticing the gap during interactional exchanges and their effects on SLA. As such, the discussion of how the

current study fits in and also adds to the extant body of work on SLA through language use during dyadic interaction centers on the linkage between episodes of collaborative dialogue around the target idioms and focus on form as well as noticing.

The fitness of the current study in terms of focus on form is evidenced in three ways. First of all, idioms are non-compositional formulaic language whose overall meanings are usually different from their constituent components, and there is often a distance between the literal and figurative/metaphorical meaning of an idiom. These unique syntactic and semantic features make idioms the “creative” or “playful” use of language that is deeply rooted in “the colorful, cultural aspects of language” (O’Keeffe, McCarthy, & Carter, 2007, p. 95). The disparities between the lexical composition and the figurative expression of the target idioms, however, were very likely to draw ESL learners’ attention to their formal properties while decoding their meaning during dyadic interaction. The cognitive efforts involved in this process were also quite likely to raise their awareness of the mappings between form and meaning. Additionally, in the current study, the target idioms were highlighted and therefore made salient to ESL learners. This followed the textual or input enhancement principle (Sharwood Smith, 1993; White, 1998) and improved the perception of L2 forms. Most importantly, in collaborating on the meaning of the target idioms, ESL learners read the excerpts and engaged in task-focused online discussions. In other words, their attention to form “occurs in interaction where the primary focus is on meaning” (Ellis et al., 2002, p. 421). Furthermore, since learners used English for resolving the L2 problems they had encountered, they “function primarily as ‘language users’ rather than as ‘learners’ when they perform the task” (Ellis, 2003, p. 252), and these two characteristics are the manifestation of focus on form instruction.

Areas that this study adds to focus on form include the examination of teacher-initiated preemptive focus on form. While Swain and her co-researchers' studies on collaborative dialogue were largely concerned with incidental focus on the L2 forms that were selected by the students, the current study explored attention to the L2 forms that were intended and preselected by ESL instructors. As Ellis (2008) suggested, preemptive focus on form is often student-initiated and addresses "*actual* gaps in the students' knowledge whereas teacher-initiated focus-on-form only dealt with forms the teacher *hypothesized* might be problematic" (p. 811). While quite cogent, this statement seems to leave out the possible matches between student-initiated and teacher-initiated focus on form. This study thus employed a pre-test to determine the actual gaps in ESL learners' L2 systems and sought to assess the extent to which "teachers' intended pedagogical focus and students' actual attentional focus" overlapped (Long & Robinson, 1998, p. 24). Additionally, given the paucity of empirical evidence on the effects of teacher-initiated preemptive focus on form on SLA, the results of this study provided preliminary data to reveal the linkage between these two.

The compatibility of this study with noticing can be demonstrated by the Comprehensible Output Hypothesis. For noticing the gap, in comparing the use of the target idioms in their contexts during the completion of the idiom learning tasks, ESL learners were provided the opportunities of noticing what is lacking in their interlanguage. Particularly in deciphering the figurative meaning of the target idioms, learners were more likely to be aware of the inadequacies in their current knowledge since "The more creative and innovative the input, the greater the chances of noticing and remembering it" (Tocalli-Beller, 2005, p. 25). For hypothesis formulation and testing, L2 learners' guesses

of the meaning of the target idioms from the contextual information and their correction of the improper use reflected what they thought the definitions might be. For metatalk, because most of the collaborative dialogue episodes in this study revolved around individual target idioms, they were the indicators of the aspects that ESL learners attended to in the process of mapping the form and meaning relationships. Since collaborative dialogue manifested ESL learners' cognitive activities, they provided a snapshot of what they had noticed and how their noticing might be influenced by their partners, and thereby illustrated their learning in progress.

The current study also adds to the research on noticing in three ways. First of all, while prior studies examined noticing the gap in light of learners' reflection on their own or their peers' L2 production during the completion of communicative tasks, in this study, ESL learners compared and contrasted examples of the target language provided by the teacher with their existing knowledge about English idioms. Therefore, their noticing the gap was directed and intentional rather than random and accidental. Second, unlike the single words or brief phrases in previous studies, this study focused on the aspects of language that were noticed by ESL learners when grappling with idioms as multi-word units. Third, instead of solely relying on LREs as the sources for measuring noticing, this study used introspective data such as ESL learners' comments during stimulated recalls for a more thorough and accurate understanding of noticing the gap.

2.2. Peer-Peer Collaborative Dialogue

As mentioned earlier, the investigation of focus on form and noticing the gap during the output period was often conducted in relation to the construct of collaborative dialogue, which was coined by the Canadian scholar Merrill Swain. In a series of her

papers, Swain (1997, 1998, 2000, 2001b, 2005, 2006) put forward and elaborated on the concept of collaborative dialogue and its connection to L2 development. In the aforementioned comprehensive review (Swain et al., 2002), she described collaborative dialogue as the dialogic interaction in which “learners work together to solve linguistic problems and/or co-construct language or knowledge about language” (p. 172).

According to Swain, the linkage between collaborative dialogue and SLA is based on the premise that learners’ output, notably their speaking and/or writing activities, is of paramount importance in aiding their L2 learning.¹ Swain found in her study with French immersion students that extensive exposure to input alone was not sufficient for learners to achieve native-like L2 proficiency; therefore, she postulated as her renowned comprehensible output hypothesis that output may play a more crucial role in SLA by creating opportunities for learners to notice the particular linguistic features in L2 that they may lack in their interlanguage, formulate and test hypotheses about how L2 works, and reflect on their own or their interlocutors’ L2 use (Swain, 1995, 1997, 1998). The problem with the comprehensible output hypothesis, however, is that it does not offer a convincing explanation as to how the alleged “noticing”, “hypothesis testing”, and “reflection” lead to acquisition. To address this gap, Swain attempted to establish the connection between output and L2 development with the instrumentality of Vygotskian sociocultural theory of mind, with particular emphasis on the reflective role of output (also known as the metalinguistic function of output or metatalk). As she put it, “The metalinguistic function of output has been the most important for us in thinking about the

¹ Although Swain used the term “output” to indicate L2 learners’ speaking and writing in her work, she (e.g., Swain, 2000, 2001b), along with other sociocultural researchers (e.g., Donato, 1994) argued against this “conduit” metaphor of SLA, suggesting it “inhibits the development of a broader understanding of language use and language learning” (Swain, 2001b, p. 279).

type of tasks in which we could engage immersion students that might help them move beyond their current state of L2 development towards more native-like performance” (Swain, 2001a, p. 51-52). In linking output with two of the key concepts of sociocultural SLA, namely mediation and internalization (Swain, 2000), Swain offers a thorough explanation as to how output in the interactive context, in other words, collaborative dialogue, could be beneficial for SLA.

2.2.1. Definition of collaborative dialogue

A basic tenet of Vygotskian sociocultural theory of mind is that all learning stems from mediation, “the process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate (i.e., gain voluntary control of and transform) the material world or their own and each other’s social and mental activity” (Lantolf & Thorne, 2006, p. 79). Language, as an essential form of symbolic artifact, mediates thinking and contributes to learning accordingly. To better link mediation and SLA, Swain first argued that speaking and writing are not simply the message conveyed by learners but are cognitive activities; specifically, they “shape and reshape cognition” (Swain, 2006, p. 96), as she described it:

Speaking is a cognitive activity, the outcome of which is an utterance. Through speaking, thought is externalized. Externalized as an utterance, it becomes an object. As an object it can be scrutinized, questioned, reflected upon, disagreed with, changed, or disregarded (Swain & Lapkin, 2002, p. 286).

Here echoing the statement she made in the comprehensive review, Swain pointed out that learners’ output can be viewed as a hybrid of *saying*, the process of formulating utterances and externalizing cognition, and *what was said*, the utterances that have been articulated, which are also the product of *saying* that can be further analyzed and

modified through the use of language. Although both *saying* and *what was said* require cognitive efforts, Swain claimed that reflections on *what was said* may be more significant to learners since it is where *languageing* comes into play: in order to make sense of their output, learners need to make use of their linguistic repertoire to grapple with the miscomprehension in their utterances and expand their L2 knowledge to compensate for the holes they notice in their interlanguage. The resolved language problems and newly constructed L2 knowledge would later be internalized in learners' minds and contribute to the development of their interlanguage. To Swain, *languageing* reflects "the process of making meaning and shaping knowledge and experience through language" (Swain, 2006, p. 98) and is where the mediation of output resides. More importantly, *languageing* about language is the source for SLA; "In it, we can observe learners operating on linguistic data and coming to an understanding of previously less well understood material. In *languageing*, we see learning taking place" (ibid).

Although sociocultural SLA researchers contended that *languageing* could be achieved through individual efforts in the form of private speech (Lantolf, 2001), it was true that individual learners, especially those at a relatively low proficiency level, might be deficient in talking about the language they produced (Leeser, 2004). It was also possible that individuals might come to incorrect solutions to the language problems they encountered (Kim, 2008). In this regard, Swain and Lapkin (2002), underscoring the social aspect of learning that is part and parcel of Vygotskian sociocultural theory of mind, maintained that output mediated SLA best through collaboration, that is, through collaborative dialogue. According to them,

In order to collaborate, learners must speak to each other. Through their dialogue, they engage in making meaning, and debate the meaning made. To make their

meaning as clear, coherent and precise as possible, learners will debate language form (morphosyntax through to discourse and pragmatics) and lexical choice.

This talk about language (metatalk) mediates second language learning (p. 286).

This emphasis on the mediation of collaborative dialogue in the process of L2 learning seemed to be corroborated by Ellis (2003), who made the claim that “Verbal interaction can be monologic or dialogic. Whereas both can serve to mediate learning, dialogic interaction is seen as central” (p. 177). From the theoretical perspective, the description of collaborative dialogue above reveals three important differences between sociocultural SLA and the traditional interaction account of SLA in terms of their views on interaction: first of all, the notion of collaborative dialogue mediating SLA denotes the co-occurrence of L2 learning and L2 use. The interaction account of SLA is based on the assumption that L2 use precedes L2 learning: although the deployment of L2 for learner-learner interaction such as negotiation of meaning and corrective feedback is deemed an essential part of the L2 learning process, it is viewed solely as a prerequisite for SLA since it simply serves to provide “good impetus” (Chapelle, 2005, p. 55) for comprehensible input, intake and comprehensible output that result in the advancement of learners’ L2 knowledge. Collaborative dialogue, in contrast, posits that L2 use and L2 learning occur at the same time: to get their message across, learners need to utilize metatalk to ensure the accuracy and clarity of their utterances, and this endeavor per se is L2 learning. Or, put differently, “use is acquisition” (Ellis, 2000, p. 274).

In addition, collaborative dialogue emphasizes learners’ conscious focus on form during their meaning making (Swain, 1998). The negotiation of meaning that is central to the interaction account of SLA conveys the idea that learners’ attention to the formal

properties of L2 derives from the communication breakdown in their conversational interaction. In other words, learners' focus on form is regarded as unintentional or secondary to their focus on meaning. Swain's depiction of learners' debate over their grammatical and lexical choices during *languageing*, on the other hand, indicates the initiative they take to discuss L2 forms in order to render the meanings of their utterances transparent. Focus on meaning and focus on form, in the case of collaborative dialogue, are thus given equal weight. Finally, it brings into the foreground learners' agency in SLA (Swain, 2006). As Lee (2004) pointed out, while the interaction account of SLA is more concerned with the product of L2 learning, sociocultural SLA focuses on the process: learners engaging in collaborative dialogue actively talk about their language problems with their partners and refine their conception of L2 forms. In so doing, each learner is imbued with his or her agency in the process of SLA and becomes the individual "who perceives, analyses, rejects or accepts solutions offered, makes decisions and so on" (Swain, 2006, p. 101). Learners, to sociocultural SLA researchers, are the creators of L2 knowledge.

Empirical evidence regarding collaborative dialogue can be found in Foster and Ohta's (2005) study, which investigated quantitatively and qualitatively the dyadic and triadic interaction that learners of Japanese engaged in during their completion of two information exchange tasks. Their analysis of the recordings of learners' verbal exchanges suggested that instances of negotiation of meaning caused by communication breakdowns were quite rare; rather, they identified a large number of episodes in which learners proactively offered each other assistance, co-constructed their discourse, corrected their partners' errors, and self-repaired their own utterances without being

prompted by their interlocutors. In light of the compelling evidence of the widespread emergence of collaborative dialogue from their data, they concluded that during peer-peer interaction learners strived to achieve the success of communication by “sharing their meanings while monitoring and modifying their own and each other’s utterances, minimizing overt communication breakdowns, and the accompanying frustration” (p. 425).

In many respects, the concept of collaborative dialogue sheds light on this study. As mentioned before, collaborative dialogue denotes learners’ conscious reflection on linguistic forms in meaning making. This study therefore echoed this principle by employing tasks that directed ESL learners’ attention to the formal aspects of the target idioms while they were making inferences about their meaning on the basis of relevant contextual information (for example, ESL learners might pay more attention to the formal properties of the target idiom “lose track of” when they were attempting to decode its meaning from the corpus excerpt that included it). To accomplish the tasks, ESL learners needed to rely on *linguaging* to work out both the semantic and syntactic aspects of the unfamiliar idioms. In addition, Vygotsky’s most compelling Zone of Proximal Development (ZPD) theory posits that L2 learning is most likely to occur under the condition of scaffolding; that is, when a novice (for example, an L2 learner) is assisted by an expert (for example, a teacher) in accomplishing the tasks that he or she is not able to perform on his or her own. Following ZPD, a number of studies concerning collaborative dialogue looked at how L2 learning occurred through expert/novice interaction, for example, collaboration between L2 learners and NSs (e.g., Dobao, 2012; Li, 2013) or low/intermediate and advanced L2 learners (e.g., Leaser, 2004; Watanabe & Swain, 2007;

Williams, 1999, 2001). This line of research, however, appeared to be somewhat detached from the ESL teaching and learning context in which the interaction between L2 learners at comparable levels of language proficiency seems to be the norm. In the case of learner-learner interaction that the current study was focusing on, it was arguable that ESL learners acted “as both experts and novices. Because no two learners have the same weaknesses and strengths, they can help each other solve their language-related problems and, working together, achieve a level of performance that is above their individual level of competence” (Dobao, 2012, p. 4). Neither of the members of the dyads in the current study had prior knowledge about the target idioms. Nevertheless, both of them needed to contribute their interpretations of the meaning of the target idioms to the SCMC-based discussions. Their sharing of what they knew and negotiating it with their partners constituted the overall vocabulary learning they had achieved through their collaboration on the tasks. Finally, collaborative dialogue is purported to be the foundation for internalization, “the process of making what was once external assistance a resource that is internally available to the individual” (Lantolf & Thorne, 2007, p. 200). In this study, learners’ performance on the posttests served to indicate the extent to which they were able to transfer the knowledge of the target idioms they had constructed in their collaborative dialogue to their memories.

2.2.2. Collaborative dialogue and L2 development

Although collaborative dialogue has been suggested by sociocultural SLA researchers as the appropriate unit of analysis for the investigation of learner interaction, it serves to explain the learning of knowledge in general rather than L2 alone. As a result, in SLA research, collaborative dialogue was often examined in relation to LREs, which

Swain (2001b) described as “an instance of collaborative dialogue” (p. 286) and more specifically “any part of a dialogue where students talk about the language they are producing, question their language use, or other- or self-correct their language production” (ibid). Leeson (2004) elaborated on the nature of LREs by specifying what they entailed, “(a) question the meaning of a linguistic item; (b) question the correctness of the spelling/pronunciation of a word; (c) question the correctness of a grammatical form; or (d) implicitly or explicitly correct their own or another’s usage of a word, form or structure” (p. 56). Among these many types of LREs, explicit discussions of word meaning or vocabulary-focused LREs and grammar issues or form-focused LREs seemed to be the major categories of LREs. For example, Swain and Lapkin’s (2002) investigation of the talk of a pair of French immersion students collaborating on a jigsaw task suggested that vocabulary-focused and form-focused LREs accounted for eighty percent of the overall LREs they produced. Malmqvist (2005) likewise found that the LREs generated by Swedish learners of German in completing dictogloss tasks were mainly related to vocabulary (58%) and grammar (42%). Findings of similar studies (e.g., Kim and McDonough, 2008, 2011; Leeson, 2004; Lowen, 2003, 2004; Williams, 1999, 2001) confirmed the high prevalence of vocabulary-focused and form-focused LREs in collaborative dialogue, indicating learners’ concern for their lexical choices and grammatical accuracy during their dyadic interaction.

As previously mentioned, collaborative dialogue is viewed as the site in which L2 learning occurs and the basis for the internalization of co-constructed linguistic knowledge. Therefore, in studies concerning LREs, tailor-made posttests appeared to be the most commonly adopted approach for the measurement of SLA. Tailor-made

posttests in general involved a detailed analysis of learners' collaborative dialogue, especially the vocabulary and form-focused LREs that emerged in their pair work, along with the creation of test questions targeted at assessing their retention of the lexical items and grammatical forms discussed in these LREs. Given that LREs varied across dyads, tailor-made posttests were usually pair-specific and consisted of discrete rather than integrative item types in order to "measure the learning of *the exact aspect of language* about which students has metatalked" (Swain, 1998, p. 76). A glimpse of learners' performance on the tailor-made posttests indicated their success in retaining the L2 features they had collaborated on. In particular Swain (1998) found that the correct solutions that learners reached in their LREs on forming feminine adjectives from masculine ones in French tended to be the accurate answers they provided to the tailor-made dyad-specific posttest questions. Williams (2001) subsequently revealed that learners achieved between 40% to 94% accuracy on the posttest items that were created based on their successfully resolved LREs. Other more recent studies (McDonough & Sunitham, 2009; Kim, 2008; Tocalli-Beller & Swain, 2007; Watanabe & Swain, 2007; Zeng & Takatsuka, 2009) in a similar vein suggested that learners were able to convert the L2 lexical and grammatical knowledge they correctly co-constructed into their accurate performance on the tailor-made posttests. Despite Williams' (2001) caution that learners' accurate answers to the test items were distant from the integration of the linguistic structures discussed in the LREs into their interlanguage, the strong link between correctly resolved LREs and the satisfactory scores that learners gained in the posttests to some extent indicated the positive impact that collaborative dialogue has on L2 development.

There are, however, caveats regarding the effects of collaborative dialogue on SLA. First of all, learners' tendency to "stick with the knowledge they had constructed collaboratively" (Swain, 1998, p. 79) can sometimes be detrimental to their L2 learning. Swain (1998) and Williams (2001), for example, found the close connection between the dyads' incorrectly resolved LREs and their incorrect answers to the items in the tailor-made posttests. Swain et al. (2002) also pinpointed the various negative effects of peer collaboration on L2 learning from her review of the extant studies on collaborative dialogue. In addition, the examination of the relationship between collaborative dialogue and SLA thus far seemed to be mostly concerned with the quantitative measures (for example, posttest scores) of individual learners' immediate retention of their LREs, whereas the microgenetic qualitative analysis of L2 learning that is central to sociocultural SLA posits that L2 development ought to be investigated in relation to learners' correct use of the lexical items and grammatical forms in their collaborative dialogue for communication. In other words, the goal of the microgenetic analysis is to "discern internalization of L2 knowledge by learners as their interactions unfold utterance-by-utterance" (Ellis & Barkhuizen, 2005, p. 236). As Swain et al. (2002) aptly pointed out, "More studies which investigate the transfer of knowledge to new contexts and longer effects are called for" (p. 181).

In addition to these two limitations, it also must be emphasized that in sharp contrast to the ubiquity of tailor-made posttests, pretests that assess learners' prior knowledge of the L2 features were for the most part absent in the literature. For the time being, only the studies conducted by Swain and her colleagues (e.g., Swain, 1998, 2001b; Swain & Lapkin, 2001, 2002; Tocalli-Beller & Swain, 2007; Watanabe & Swain, 2007)

incorporated the results of pretests as the baseline for determining the growth of learners' L2 knowledge that derived from their collaborative dialogue. This exclusion of pretests appears to be driven by three reasons. The first one is grounded in theoretical considerations. According to Ellis (2000), since sociocultural SLA claimed that L2 learning occurs in interaction rather than as a result of it, it would be pointless to use pretests and posttests to separate the SLA process; instead, collaborative interaction or L2 learning should be examined "in its totality in order to show the emergence of learning" (p. 272).

The second one relates to practical issues. As Loewen (2005) noted, the unpredictability of the linguistic items that emerged from learners' collaborative work on communicative tasks made it next to impossible to create pretests to assess their prior knowledge. The third one is Williams' (2001) claim that the presence of LREs per se was indicative of learners' shortage of prior knowledge. According to her, if the learners in her study had been familiar with the LREs, they would not have "(1) requested information about the word or form, (b) entered into a negotiation sequence surrounding it, or (3) produced an utterance containing a non-target-like version of it, prompting feedback from the teacher or another learner" (p. 335). Although these arguments seemed plausible, they ignored the very important fact that to reach the correct solutions to their collaborative dialogue, one member of the dyads should have at least some previous knowledge about the vocabulary or form-focused LREs. Without pretests assessing the degree to which learners were knowledgeable about the linguistic items in their LREs, it would be unwarranted to draw conclusions about the role of collaborative dialogue in L2 learning solely by virtue of learners' performance on the posttests. This deficiency may

account for the discrepancies in the benefits that more proficient learners received from collaborative dialogue: while some studies (e.g., Leeson, 2004) suggested that higher proficiency learners did not benefit much from their collaboration with the low proficiency learners; others (e.g., Williams, 2001) maintained that higher proficiency learners were more likely to be the beneficiaries of the LREs they produced with their lower proficiency interlocutors. Apparently, due to the lack of pretests in these studies, it was hard to determine “if correct test scores represent the incorporation of new linguistic knowledge into the learner’s interlanguage system or if they represent a consolidation of previously existing knowledge” (Loewen, 2005, p. 382).

2.2.3. Factors influencing the production of collaborative dialogue

Collaborative dialogue being the source for L2 gains, sociocultural SLA researchers are concerned with the factors that contribute to the production of LREs. To date, there seems to be a consensus among researchers that the frequency and nature of LREs are closely tied to the overall proficiency of the dyads engaging in collaborative interaction. For the frequency of LREs, Leeson (2004) found that the high-high dyads in his study produced far more LREs than the low-low and high-low dyads in accomplishing a dictogloss task. Kim and McDonough (2008), Watanabe and Swain (2007), Williams (1999, 2001) echoed this finding by showing that the total number of LREs tended to be higher when the overall proficiency level of dyads was higher. For the nature of LREs, or more specifically, the distribution of vocabulary and form-focused LREs in collaborative dialogue, as well as the correctness and incorrectness of the resolutions of the LREs, the aforementioned researchers also provided valuable insights. Leeson (2004), for example, suggested that the high-high dyads generated more form-

focused and correctly resolved LREs than the high-low and low-low dyads. In contrast, Williams (1999) reported the overwhelming amount of vocabulary-focused LREs for all the four proficiency levels of ESL learners (beginning, intermediate, high-intermediate, advanced) in her data. She also found that the more proficient learners had a better chance of correctly solving their LREs. Kim and McDonough's (2008) study similarly revealed that intermediate Korean L2 learners generated significantly more vocabulary-focused and correctly resolved LREs when collaborating with advanced interlocutors than with intermediate interlocutors. Overall, it seemed that the amount and resolution of the vocabulary and form-focused LREs were profoundly influenced by the L2 proficiency of the dyads. Due to the fact that the frequency of LREs stands for the occurrence of L2 learning if LREs are equivalent to SLA, coupled with the aforementioned findings that correctly resolved LREs were more easily retained by learners in tailor-made posttests, it was also likely that learners who had high L2 proficiency were able to benefit more from their collaborative interaction in terms of the quantity and quality of the LREs.

Another crucial factor that may have an impact on the emergence of LREs are pair dynamics or patterns of interaction. Thus far, Storch's (2002) longitudinal study on the nature of classroom interaction between ten pairs of adult ESL students collaborating on a series of language-centered tasks seems to be the only research study that examined the underlying relationship between the two. Particularly her data suggested the existence of four distinct patterns of interaction: collaborative, dominant/dominant, dominant/passive, and expert/novice. The division of these four patterns, according to her, was rooted in the degree of equality and mutuality exhibited in the learner-learner

interaction. Specifically the collaborative orientations, notably the collaborative and expert/novice patterns of interaction, were the one that resulted in the occurrence of LREs and the success in task completion given the acceptable level of equality and mutuality involved. The non-collaborative orientations, including the dominant/passive and dominant/dominant patterns, on the other hand, were the types that might have a negative effect on the production of LREs because of the insufficient equality and mutuality they encompassed (see Figure 1). Storch also claimed that L2 learners engaging in the collaborative orientations were more successful in internalizing the LREs they produced.

Succeeding studies conducted by Watanabe and Swain (2007) and Kim and McDonough (2008) added to the understanding of pair dynamics by illuminating how the patterns of interaction differed when the same L2 learners worked with interlocutors at different proficiency levels. Watanabe and Swain's (2007) study in particular suggested that the patterns of interaction remained the same when an intermediate Japanese learner of English worked with a low proficiency interlocutor versus with a high proficiency interlocutor. However, they also found that when intermediate learners engaged in the

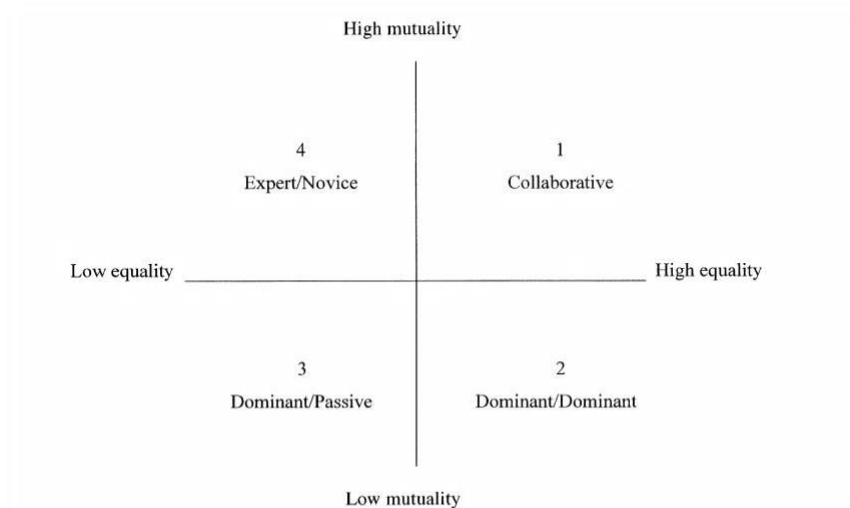


Figure 1. A model of dyadic interaction (Storch, 2002, p. 128)

collaborative orientations they produced more LREs and achieved higher posttest scores. Kim and McDonough's (2008) examination of the differences in patterns of interaction when intermediate Korean L2 learners collaborated with an intermediate interlocutor versus an advanced interlocutor indicated that intermediate learners who were involved in the non-collaborative orientations when paired with intermediate interlocutors tended to be collaborative when they worked with advanced interlocutors. Intermediate learners' discussion with advanced interlocutors, and the consequent collaborative orientations, also yielded a slightly higher accuracy rate of the resolutions to the LREs. In a nutshell, pair dynamics seemed to have discernable effects on the generation of LREs, or by extension the learning of L2 knowledge, and the patterns of interaction that the members of a dyad showed may or may not vary depending on the characteristics of their partners.

Additional factors, such as the primary pedagogical focus of learners' language program (Loewen, 2004), previous L2 instruction experiences (Amirkhiz et al., 2013) and gender (Ross-Feldman, 2007), were found to be influential to the production of LREs. It should also be noted that the L1s of the members of the dyads have barely, if at all, been deemed as an important factor, even though L1s did not seem to play a lesser role in collaborative interaction. DiCamilla and Anton (2012), for example, in their review of the extant literature on the role of L1 in L2 learning, made the claim that "the use of L1 accomplishes beneficial cognitive, social, and affective functions for learner attempting to become bilingual in an L2" (p. 168). According to them, learners' use of their L1s mediated their learning of L2, for collaborative dialogue and private speech alike, and learners often resorted to their L1s when faced with cognitive demanding tasks. An essential function of L1s, as they pointed out, was to foster learners' *linguaging* (Wood,

Bruner, & Ross, 1976; Rommetveit, 1974) to gain easier access to L2 forms when “they tried to make sense of the meaning or form of the text and when they evaluated an L2 text either in the form of translation or by externalizing their explicit knowledge about the L2” (DiCamilla & Anton, 2012, p. 165). Swain and Lapkin (2000) and Storch and Wigglesworth (2003) made similar points, suggesting learners’ frequent reference to their L1s when discussing difficult lexical and grammatical concepts in pair work. Studies conducted in English as a Foreign Language (EFL) settings (e.g., Storch & Aldosari, 2010, 2012; Rayati, et. al., 2012) also documented the wide use of L1s for the discussion of lexical and grammatical problems.

Until now, Dobao’s (2012) investigation of how the occurrence and nature of LREs differed between learner-learner and learner-NS interaction appeared to be the only study that looked at the effects of L1 composition on the production of collaborative dialogue. Specifically her findings suggested that the learner-NS dyads generated more vocabulary-focused and more correctly resolved LREs during a meaning-oriented spot-the-difference task than the learner-learner dyads. Although her study did not touch on the LREs produced by dyads of L2 learners, it suggested that the presence of an interlocutor of a different L1 indeed influenced how LREs were carried out in collaborative interaction.

2.2.4. Effects of collaborative dialogue on L2 vocabulary learning

As mentioned previously, vocabulary-focused LREs were the most common type of LREs that occurred in learner-learner or learner-NS interaction, and the accuracy of learners’ performance on the tailor-made posttests that were based on vocabulary-focused LREs to a large extent reflected their learning of the unknown words discussed in the

collaborative dialogue. A closer look at the extant literature indicates mixed results regarding the effects of vocabulary-focused LREs on the development of learners' L2 vocabulary knowledge: while some studies showed relatively high retention rates as learners were able to remember more than half of the lexical items that were correctly resolved in their LREs (Swain, 1998; Tocalli-Beller & Swain 2007; Williams, 2001), other studies demonstrated the less than satisfactory scores that learners obtained on the posttests. For instance, McDonough and Sunitham's (2009) examination of Thai EFL learners' recall of the vocabulary-focused LREs they produced while collaborating on self-access computer activities revealed that they remembered less than half of the lexical items in the subsequent tailor-made posttests. Because in the study learners mostly used their L1 (Thai) for communication, McDonough and Sunitham contended that the exclusive use of L1 for mediation would in fact be counterproductive to the learning of L2 vocabulary.

Another strand of research on this topic concerned the comparison of the effectiveness of collaborative work versus individual work for the learning of L2 vocabulary, and once again the findings of these studies suggested that the effects of collaborative dialogue on L2 vocabulary acquisition were inconsistent. For instance, Kim (2008), drawing on a dictogloss task, found that learners who engaged in collaborative interaction performed significantly better on the immediate and delayed vocabulary posttests. Nassaji and Tian (2010), on the contrary, reported that low-intermediate ESL learners' pair work on a reconstruction cloze task and a reconstruction-editing task that were targeted at the learning of English phrasal verbs did not lead to significantly greater gains of knowledge about the preselected phrasal verbs than individual work.

These research endeavors, despite their incongruity, were a mine of information about the effectiveness of vocabulary-focused LREs for L2 lexical gains. Nevertheless, as Kim (2008) noted, in studies concerning collaborative dialogue, “The acquisition of vocabulary often has been embedded in L2 development in general” (p. 118), and as such the exploration of the role of vocabulary-focused LREs in L2 lexical development was still in its initial stages, which resulted in several noticeable gaps in the literature. First, there seems to be very little research concerning learners’ vocabulary acquisition as a result of their collaborative dialogue in the context of teacher-initiated preemptive focus on form instruction. Ellis et al. (2001b) described preemptive focus on form as “the teacher or learner initiating attention to form even though no actual problem in production has arisen...preemptive focus on form addresses an actual or a perceived gap in the students’ knowledge” (p. 414). Their study on meaning-focused classroom interaction showed that the majority of the preemptive focus on form episodes were initiated by students and aimed at the solutions to lexical problems. In addition, L2 learners tended to incorporate the vocabulary items discussed during their collaborative interaction into their succeeding production. While most of the studies on collaborative dialogue concerned student-initiated preemptive focus on form, there has been little research on teacher-initiated preemptive focus on form that looked at the learning of preselected L2 features. To date, Tocalli-Beller and Swain’s (2007) investigation of ESL dyads’ *language* over riddles and puns appeared to be the only study that examined the “intentional and purposeful inclusion” of linguistic items (p. 188). More research, therefore, is needed to determine the effectiveness of “proactive attempts to teach specific linguistic forms communicatively” (Ellis et al., 2001b, p. 412).

Additionally, drawing on a focus-on-form episode (FFE), a construct similar to LRE, Loewen (2003, 2004) found that L2 learners' successful uptake of the lexical items they inquired from their teachers during classroom interaction, which was deemed to be the prerequisite of vocabulary learning, was closely associated with the characteristics, especially the complexity of the FFEs. His methodology challenged the examination of LREs solely for the creation of tailor-made posttests in the aforementioned studies and suggested the necessity of a more in-depth analysis of the characteristics of LREs for the determination of the relationship between collaborative dialogue and L2 lexical acquisition. Third, the lexical items that emerged from the LREs in the majority of the studies concerning collaborative dialogue tended to be simple, concrete nouns, whereas Yang and Xie's (2013) study on the learning of Chinese idioms showed that there were differences between concrete and abstract idioms in terms of learners' comprehension and retention. Fourth, except for a few researchers (e.g., Tocalli-Beller & Swain, 2007; Zeng & Takatsuka, 2009), the investigation of L2 vocabulary learning as a result of collaborative dialogue seemed to be confined to learners' immediate retention of their vocabulary-focused LREs. Thus, it should come as no surprise that there were doubts about whether or not vocabulary-focused LREs can have long-term effects for the increase in learners' vocabulary knowledge (Swain et al., 2002).

2.2.5. Collaborative dialogue in SCMC

As mentioned earlier, SCMC combines the features of oral and written communication, which was described as "a form of writing that is interactional in a real-time sense" (Shekary & Tahririan, 2006, p. 558). Smith (2003) further argued that the hybrid nature of SCMC would be of benefit to L2 learners in that it "allows a greater

opportunity to attend to and reflect upon the form and content of the message, while retaining the conversational feel and flow as well as the interaction nature of verbal discussions” (p. 39). Specifically with regard to the influence of SCMC-based learner interaction on L2 lexical acquisition, de la Fuente (2003) and Smith (2004), drawing on the interaction account of SLA, demonstrated the positive role that computer-mediated negotiation of meaning played in the development of learners’ receptive and productive knowledge of L2 vocabulary. In particular, de la Fuente (2003) compared face-to-face interaction with SCMC and found that negotiations in these two modes of communication were comparable in promoting written (but not oral) receptive and productive acquisition and retention of unfamiliar Spanish words. Smith (2004) compared SCMC-based negotiations with other types of interactional adjustments and found that the negotiations between intermediate-level ESL learners around concrete nouns were far more effective in fostering their immediate and delayed recognition and production of those items. On the basis of the direct link between negotiation of meaning and SLA, he made the claim that “in a CMC environment, learners often choose to negotiate unknown lexical items and that this negotiation is quite effective, leading in most cases to some acquisition of basic word meanings of previously unknown lexical items” (p. 387).

As far as sociocultural SLA is concerned, Yilmaz (2007) and Zeng and Takatsuka (2009) appeared to be the first two researchers who explored the operationalization of collaborative dialogue in SCMC. Particularly Yilmaz, in his PhD dissertation, examined the occurrence and characteristics of SCMC-based collaborative dialogue produced by Turkish speaking English as a Foreign Language (EFL) learners collaborating on jigsaw and dictogloss tasks. His analysis of the chat transcripts suggested that LREs were less

frequent in SCMC than in face-to-face communication, and the majority of the collaborative dialogue generated through text-based online chat was vocabulary-focused and correctly resolved. Zeng and Takatsuka (2009) further investigated the connection between SCMC-based collaborative dialogue and SLA. Their data on Chinese tertiary-level learners' collaboration on a series of communicative tasks via SCMC and their performance on the immediate and delayed tailor-made posttests indicated that the text-based exchanges fostered their mutual attention to each other's language use as well as their lexical and grammatical growth. They also noticed that the participants in their study acquired (87.1%) and retained (82.8%) most of the lexical items they had successfully resolved in their vocabulary-focused LREs. Additionally, their responses to the post-task survey revealed their positive attitudes toward SCMC-based collaboration.

The findings of the two studies above shed light on SCMC-based collaborative dialogue and its effects on SLA. Nevertheless, both studies were conducted in EFL settings with homogeneous dyads of which the members spoke the same L1, whereas how SCMC-based collaborative dialogue was carried out in ESL settings in which both homogenous and heterogeneous dyads were likely to be engaged in collaborative interaction was not investigated. Furthermore, in contrast with their heavy reliance on quantitative measures, a qualitative analysis of the patterns of interaction and the microgenetic growth of L2 lexical knowledge, which was claimed to be essential to sociocultural SLA research (Ellis, 2000; Ellis & Barkhuizen, 2005), was entirely absent. In addition, the examination of the two of the most important constructs in sociocultural SLA, namely the use of L2 for language socialization and scaffolded assistance (Lantolf, 2000) appeared to be completely ignored. Finally, ESL learners' thoughts and opinions

concerning the usefulness of SCMC-based collaboration for their L2 learning were to a great extent ignored in these two studies. However, as Gutierrez (2003) emphasized in her discussion of the methodological considerations underlying research studies concerning collaborative activity in computer-mediated tasks within the framework of sociocultural SLA, a thorough investigation of collaborative dialogue should include learners' perceptions of the quality and learning outcome of their collaboration. These limitations, to a large extent, form the basis for this study.

2.3. Corpus-Based Analysis of English Idioms

Having understood the importance of collaborative dialogue during dyadic interaction to the development of L2 abilities, in the following two sections I review the literature on the linguistic features targeted for peer-peer collaboration and learning in the current study, notably English idioms. I first introduce the corpus-based analysis of English idioms, focusing on their formal and functional variation in academic spoken and written discourse. I then elaborate on the teaching and learning of English idioms and provide details about the difficulties, the pros and cons of teaching the receptive and productive knowledge, and the rationale for the selection of target idioms.

Linguistic variation has received increasing attention in corpus linguistics research in recent years. As Reppen, Fitzmaurice, & Biber (2002) pointed out, the exploration of linguistic variation is “central to the study of language use” (p. 7) and needs to be based on empirical examination of multiple authentic texts gathered from numerous speakers. Corpus linguistics, “the study of language in use through corpora” (Bennett, 2010, p. 2), serves as a good tool for the analysis of linguistic variation. A corpus is “a large, principled collection of naturally occurring examples of language

stored electronically” (ibid), or “a collection of authentic language, either written or spoken, which has been compiled for a particular purpose” (Flowerdew, 2012, p. 3). Compared with the traditional way of discourse analysis, corpus-based analysis allows for the adequate representation of naturally occurring discourse, (semi-) automatic linguistic processing of texts using computational processing, reliable, accurate quantitative analyses of linguistic features, as well as the possibility of cumulative results and accountability (Biber et al., 2002, p. 13). In recent years, corpus linguistics has been commonly employed in studies on the linguistic variation of multiword units such as lexical bundles (e.g., Biber, Cornard, & Cortes, 2004; Biber & Barbieri, 2007) and idioms in academic speech and writing. In this section, I demonstrate, on the basis of my search of the literature, that corpus linguistics has added to our knowledge of the formal and functional variation of idioms by showing how these variations are influenced by the context of academic discourse and speakers’ communicative purposes. I support my point by first providing a brief overview of the formal and functional variation of idioms, and then introducing the existing research work on corpus-based analysis of the variations.

2.3.1. Formal and functional variation of idioms

The formal variation of idioms, a type of multiword units, is often examined in relation to their lexicogrammatical fixedness, and the study of fixed multiword units concerns phraseology, “the study of the structure, meaning and use of word combinations” (Cowie, 1994, p. 3168) or “a subfield of lexicology dealing with the study of word combinations...according to their degree of semantic non-compositionality, syntactic fixedness, lexical restrictions, and institutionalization” (Granger & Meunier, 2008, p. 19). As many researchers (e.g., Grant & Bauer, 2004; Moon, 1998) suggested, a

defining characteristic of idioms is their fixedness in terms of internal grammar and vocabulary. However, there appeared to be some disagreement among researchers as to the extent to which idioms are fixed. According to Grant and Bauer (2004), while the transformation of idioms, including changes in word placement and word order, was not allowed by some linguists (e.g., Wood, 1981), others (e.g., Carter, 1987; Glaser, 1988) insisted that the syntactic and lexical structure of idioms depend largely on “collocational restriction, syntactic structure, and semantic opacity” (Grant & Bauer, 2004, p. 45). Findings from corpus linguistics, on the other hand, have confirmed the formal variation of idioms in real-life language use. Philip (2008), for example, made the point that “corpus linguists have consistently noticed that canonical forms (dictionary citation forms) are not particularly common in language corpora, and crucially, they tend to be outnumbered by non-canonical variants and exploitations... Their (non-canonical forms) existence fills a semantic and pragmatic need” (p. 95). Moon’s (1998) corpus-based analysis similarly showed that “around 40% of database fixed expressions and idioms have lexical variations or strongly institutionalized transformations, and around 14% have two or more variations on their canonical forms” (p. 120). Specific variations identified by her included lexical variation, structural variation, frames and variation, antonymous and parallel forms, free realizations, exploitations, along with interruption and insertion (p. 124-177). McCarthy (1998), based on data from the CANCODE corpus, maintained that idioms are not restricted to *verb + complement* type but include a wide range of forms such as phrasal verbs and binomials.

As for the functional variation of idioms, while early studies were mostly concerned with the pragmatic and social functions of idioms (e.g., Drew & Holt, 1988;

Strassler, 1982), recent research, on the basis of corpus analysis, focused more on the use of idioms at the discourse level. McPherron and Randolph (2014), for example, reviewing corpus-based studies from 1996 to 2005, identified three functions of idioms in conversations, namely helping in topic termination and topic transition, assisting in evaluating storytelling situations, and creating a sense of social bonding (p. 30).

McCarthy (1998) similarly asserted that idioms “are evaluative and frequently involve threats to face” (p. 145). Moon (1998, p. 217), on the other hand, drawing on Halliday’s (1973, 1985) systemic functional linguistics (SFL), described the six text functions of fixed expressions and idioms, including informational, evaluative, situational, modalizing, and organizational.

2.3.2. Corpus linguistics and the formal and functional variation of idioms in spoken and written academic discourse

Due to the scope of this study, I explore how corpus linguistics has added to our knowledge about the formal and functional variation of idioms in spoken and written academic discourse mainly in relation to studies that drew on corpora that use “academic” in their names or contain academic texts. This is because despite the fact that many researchers (Grant, 2003; McCarthy, 1998; Moon, 1998; O’Keeffe et al., 2007) have thoroughly investigated the variation of idioms in terms of their functions and forms, the corpora they employed for data analysis were not academic in nature (for example, Grant’s focus on British National Corpus (BNC), the Oxford Hector Pilot Corpus (OHPC) employed in Moon’s study, as well as McCarthy and O’Keeffe et al.’s use of The Cambridge and Nottingham Corpus of Discourse in English (CANCODE) rather than Cambridge Academic English Corpus). On the basis of this criterion,

Fernando (1996), Simpson and Mendis (2003), Liu (2003), Murphy and O'Boyle (2005) and Oakey's (2002) studies have been selected and elaborated as follow.

Fernando (1996) examined the use of idioms in both spoken and written academic discourse on grounds of her own corpus which includes collections from "newspapers...general reading, literary and academic, personal correspondence, conversation, the electronic media, and seminars" (p. 24). In particular, for the formal variation of idioms, she proposed four ways in which idioms can be manipulated or transformed in light of L2 users' communicative needs (Fernando, 1996, p. 42-56), including 1) replacements or substitutions of tense (e.g., the use of present tense indicating a timeless truth in *Everybody smells a rat in a doctored obituary* can be changed into past tense to show past time, as in *He smelt a rat and he kept mum*; whereas the change of present tense in *A stitch in time saves nine* into past *A stitch in time saved nine* is unacceptable), number (while some idioms have both singular and plural forms, for example, *a red herring* and *red herrings*, pluralization (e.g., *kick the buckets*) is not possible in many idioms (e.g., *kick the bucket*), nor are singulars (e.g., *raining a cat and a dog* is not the alternative for *raining cats and dogs*), lexical (some idioms (e.g., *burn one's boats*) allow lexical substitutions (e.g., *burn one's bridges*), while others (e.g., *tighten one's belt*) do not permit substitutions (e.g., *tighten one's girdle* does not exist)), 2) additions (extraneous elements are sometimes introduced to an idiom to reinforce its meaning (e.g., the word "pitch" in *in the pitch dark*, and the word "carpet" in *carpeted ivory tower*)), 3) permutations (despite some idioms' lack of permutational possibilities in terms of their internal grammar (e.g., *say no more* is not the same as *no more was said*), permutation of constituent elements is feasible in other idioms, specifically in the form of

conversion of a verb + object predicate into a nominal (e.g., *somebody drops a brick* becomes *a brick dropper*) and passivization (e.g., *shed crocodile tears* becomes *crocodile tears have been shed*), along with 4) deletions or truncated/reduced forms (*dangle a carrot before the donkey* is reduced to *dangle a carrot*; however, most verb + preposition/particle idioms such as *bring the house down* do not have truncated forms). Fernando claimed that these transformational variants are indicative of language users' communicative purposes to "produce the correct form of the idiom demanded by the linguistic context... (or) to display their wit and skill in handling the vocabulary" (ibid, p. 54).

For the functional variation of idioms in spoken and written academic discourse, Fernando, following Halliday's (1973, 1985) SFL theory accounting for how linguistic resources are used for constructing and expressing meaning, distinguished three different types of idiomatic expressions: ideational, interpersonal, and relational. She argued that these three functional variations are deeply rooted in their roles in a discourse. Specifically, as she described it, ideational idioms are used more often to express the content of a discourse, interpersonal idioms are highly evaluative and attitudinal, and relational idioms maintain the cohesion and coherence of a discourse (see p. 215). More detailed information about the functions of these three types of idiomatic expressions is presented in Table 1.

Simpson and Mendis' (2003) corpus-based analysis of the use of idioms in academic speech is perhaps by far the most comprehensive examination of the formal and functional variation of idioms in spoken academic discourse. Their study was based on academic speech recorded at the University of Michigan. MICASE covers a large variety

Table 1. The major functions of conventionalized expressions (Fernando, 1996, p. 187-188)

Ideational expressions	Interpersonal expressions	Relational expressions
Contribute to the subject matter of a discourse by functioning as impressionistic packages of information. (e.g., <i>the emperor's new clothes</i> ; <i>spill the beans</i> ; <i>red herring</i>)	Organize the flow of verbal exchanges and facilitate interaction between language-users, especially in promoting conviviality. (e.g., <i>You're kidding/joking</i> ; <i>Has the cat got your tongue?</i>)	At the micro-level they relate phrases or clauses within sentences (intra-sentential) or relate sentences within a discourse (inter-sentential); indicate a point in time, or temporal duration. At the macro-level they relate portions of a discourse, for example, paragraphs introducing new topics (meta-discoursal). Macro relational expressions also indicate global temporal frame. (e.g., <i>in a jiffy</i> ; <i>round the clock</i>)

of speech events ranging from “large lectures, to dissertation defenses, to one-to-one office-hour interactions and small peer-led study group sessions” (p. 422), and a number of the University of Michigan graduate school’s disciplines. Particularly for the formal variation of idioms in academic speech, their study results echoed Fernando’s (1996) findings about the transformations of idioms by showing the existence of deletion or truncation (e.g., *haven’t the foggiest* without the word *idea*; *rearing its head* with the word *ugly* omitted; and *carrot* for *carrot and stick*), additions (e.g., *flip side of the same coin* with the word *same* inserted), replacements or substitutions (e.g., *walking through a landmine* rather than *walking through a minefield*; *pick up where we left off* is replaced by *pick up where we took off*), and permutations (e.g., *side in your thorns* is the same as *a thorn in your side*). Additionally, they found a high prevalence of the creative and

unpredictable uses of idioms, for example, *coin flipping* for *flip side of the same coin*, *arm twisting* for *twist someone's arm*, and *one nit to pick* for *nitpicky* (p. 435-437).

For the functional variation of idioms in academic speech, they identified six types of pragmatic functions of idioms in relation to the discourse they reside in, namely evaluation, description, paraphrase, emphasis, collaboration, and metalanguage (p. 427-432). In particular evaluation is normally preceded by a factual observation (e.g., *out of the whack*) and used in a third-person context denoting a threat to face (e.g., *threw her for a loop*). Description, on the other hand, usually but not always overlaps with evaluation (e.g., *hand in hand*, *run-of-the-mill* ice cream, *out of whack*). Paraphrases are in general used to “reduce the formality and highly transactional nature of academic discourse” (p. 429) and include idioms such as *put up a stink*, *no mean feat*, and *a dime a dozen*. The emphasis function often involves the speaker's repetition of idioms in their truncated or creative forms (e.g., *carrot and stick*, *kitchen sink*, and *put the heat on*) in order to stress content or support explanations. Collaboration entails the use of idioms for the generation of collaborative discourse and the fostering of a sense of solidarity within a group of speakers, and it is often associated with the repetition and variation of idioms (e.g., *put the heat on*, *under some heat*, *puts some heat on*, *put heat on*, *putting heat on themselves*, *heat put on them*, as well as *put more heat on them*). Metalanguage is where idioms function as “signals or signposting devices” (p. 431) and includes *go off on a tangent*, *on that note*, *cut to the chase*, and *train of thought*. In addition to these six pragmatic functions, Simpson and Mendis also found many instances of cross-functioning, in which “a single idiomatic expression often performs more than one function” (p. 427), for

example, the aforementioned idiom *out of whack* can be used for both evaluation and description.

Similar to Simpson and Mendis' corpus study on MICASE, Murphy and O'Boyle's (2005, cited in O'Keefee et al., 2007, p. 92) analysis of LIBEL Corpus of Academic Spoken English revealed similar formal and functional variation of idioms (e.g., the occurrence of *bottom line*, *down the line*, *come into play*, *get a handle on*) in academic monologues and dialogues. Furthermore, their data showed the employment of idioms such as *both sides of the same coin*, *part and parcel*, and *the nitty-gritty* for both delivering disciplinary knowledge and projecting interpersonal and cultural bonding. O'Keefee et al.'s (2007) examination of the spoken academic data segment of Cambridge International Corpus (CIC) also evidenced the use of idioms (e.g., *the nitty-gritty*, *get a handle on*, *down the line*) for the manifestation of informal, interpersonal and cultural closeness within formal, academic contexts.

Liu's (2003) exploration of the most frequently used spoken American English idioms is another comprehensive investigation of the formal variation of idioms in spoken academic discourse. Drawing on Barlow's (2000) Corpus of Spoken, Professional American English (CSPA), Simpson et al.'s (2002) MICASE, and Liu's own corpus of spoken American media English, Liu found ample examples of truncations (e.g., *bring someone up* for *bring someone up to date* (or *up to speed*)) and parts-of-speech conversion (*ballpark* used as an adverb instead of its normal use of either a noun or an adjective). Liu pointed out that these formal variations might be influenced by discourse context. In addition, Liu identified three categories of meaning-related variants, namely meaning dependent (e.g., the co-occurrence of *in the long run* and *in the long term*, as

well as *in the short run* and *in the short term*), meaning extension (e.g., *ballpark idea*, extending the adjective meaning of *ballpark* in *ballpark figures*), and hyponym exchange (e.g., *slip of the lip* instead of *slip of the tongue*, and *join the bandwagon* rather than *jump on the bandwagon*). Finally, Liu's corpora data showed the discrepancies in the tense of verbal idioms; that is, "certain phrasal verbs appear predominantly in the present tense, whereas others feature substantially more in the past tense" (p. 684). Idioms like *go ahead* and *make sure* (predominantly used in the present tense), along with *leave out*, *work out*, and *turn out* (mostly presented in past tense), are typical examples of the tense variation of verbal idioms.

In contrast to the abundance of corpus-based studies on the formal and functional variation of idioms in spoken academic discourse, only a handful of researchers explored this topic with written academic discourse. This disparity, however, should come as no surprise due to Biber et al.'s (1999) finding that "idiom use is register sensitive and more common in fiction and conversation" (cited in Liu, 2003, p. 674). Thus far, Oakey's (2002) examination of the use of the lexical phrase *it is/has been (often) asserted/believed/noted that X* in English academic writing seems to be the only one study that focused on the formal and functional variation of formulaic language (a broader definition of idioms) in written academic discourse. Based on published journal articles and book extracts from the fields of social science, medicine, and technical/engineering, Oakey found that academic writers of these three disciplines varied in their uses of the simple present and present perfect form of this lexical phrase, and *know*, *conclude*, *assume*, *show*, and *suggest* are the most commonly used verbs. For functional variation, this lexical phrase has mainly been exploited for "attributed and

non-attributed support, negatively evaluated statements, and reference within the text” (p. 127) in academic writing, and similar to Simpson and Mendis (2003), instances of cross-functioning have also been identified in the uses of this lexical phrase.

The review of the literature on corpus-based analysis of the formal and functional variation of idioms shows that corpus linguistics can reveal not only what these variations are but also how they are related to the academic discourse and speakers’ communicative purposes. From the point of view of idiom teaching and learning, the use of data from corpora can help ESL learners gain further insight into the differences between the canonical and non-canonical forms and the functions of idioms in naturally occurring discourse.

2.4. Teaching and Learning of English Idioms

The section above describes the advantages of the use of corpus linguistics for the teaching and learning of English idioms. In this section, I elaborate on the rationale for the selection of the target idioms in this study by providing an overview of idioms, discussing the reasons why ESL learners find it difficult to learn idioms, explaining the pros and cons of teaching receptive and/or productive knowledge of idioms, and presenting my rationale.

Idioms and collocations are a subset of multi-word units, the “fixed and recurrent pattern of lexical material sanctioned by usage” (Grant and Bauer, 2004, p. 38), or by extension, formulaic language or expressions (Nattinger & DeCarrico 1992; Moon, 1998; Wray, 1999, 2000, 2002; Wray & Perkins, 2000). Fernando (1996), for example, clearly identified idioms as “conventionalized multi-word expressions” (p. 1). Although the term “idioms” does not have a single, all-encompassing definition, most research journal

articles, textbooks, and dictionaries define idioms in relation to their characteristics of non-compositionality or semantic opacity, institutionalization, and lexicogrammatical fixedness or frozenness (Grant & Bauer, 2004; Fernando 1996; Moon, 1998). For non-compositionality, it is generally accepted that the comprehension of the meanings of idioms involves the interpretation of figurative language or metaphors, and according to Fernando (1996), on the basis of the distance between their literal and figurative or metaphorical meanings, idioms can be classified as literal (e.g., *arm in arm*; *dark and handsome*), semi-literal (e.g., *fat chance*; *drop names*), and pure (e.g., *kick the bucket*, *red herring*) idioms (p. 32). For fixedness, many idioms permit syntactic and lexical transformations. The teaching and learning of idioms have long been marginalized in ESL instruction (Boers, Demecheleer, & Eyckmans, 2004a), but now it has been widely recognized that a mastery of idioms is key to ESL learners' achievement of native-like proficiency (Fernando, 1996; Schmitt, 2000; Wray, 2000; Simpson & Mendis, 2003). However, idioms are simultaneously deemed “notoriously difficult” for ESL learners (Celce-Murcia & Larsen-Freeman, 1999, p. 39) due to their “rather rigid structure, quite unpredictable meaning, and fairly extensive use” (Liu, 2003, p. 671).

2.4.1. Difficulties of leaning English idioms

A very important reason for the difficulty that idioms pose for ESL learners concerns their conceptual nature. Kovecses and Szabco (1996) argued that idioms are “products of our conceptual system and not simply a matter of language” (p. 330), and as such are “conceptual, and not linguistic, in nature” (ibid). Kovecses (2010) further pointed out that idioms use conceptual metaphors to link source domain, “the conceptual domain from which we draw metaphorical expressions to understand another conceptual

domain” (p. 4), and target domain, “the domain that we try to understand through the use of the source domain” (ibid). For example, in the sentence *Argument is war*, *argument* is the target domain, and *war* is the source domain. To truly understand conceptual metaphors, according to Kovecses, ESL learners need to establish “systematic correspondences between the source and the target (domains)” (p. 7) through a set of mappings. However, these mappings can be quite challenging. Boers, Demecheleer, & Eyckmans (2004b), for instance, suggested the use of *etymological elaboration*, the kind of pedagogy that facilitates ESL learners’ comprehension of the conceptual metaphor in an idiom through reference to its “origin or source domain, i.e. the context in which it was originally used in a literal sense” (p. 378). There are, nevertheless, two limitations of this approach. First of all, it seemed to be effective only with idioms “whose source domains are easy to identify and are sufficiently informative to figure out the metaphorical sense” (ibid, p. 379), and therefore those opaque or pure idioms are more likely to be subject to non-comprehension due to ESL learners’ insufficient cultural and lexical knowledge. Second, even with idioms that are suitable for *etymological elaboration*, ESL learners’ little familiarity with or misinterpretation of the meanings of the key words in the idioms, the lack of salience of a particular source domain in some cultures (ibid, p. 380), and ESL learners’ inability to pinpoint the precise conceptual metaphors of an idiom despite their identification of its source domain (Boers et al., 2009) can all hinder the success of mappings. This is compounded by findings from prior studies suggesting ESL learners’ native languages (L1s) might interfere with their comprehension and retention of English idioms of similar source domains (e.g., Irujo, 1986). Since learners, in processing idioms, are not advantageous in terms of linking L2

lexical items to the concepts they denote (e.g., source domains) through the use of their L1s, as posited by the revised hierarchical model (Kroll & Stewart, 1994), it appears that the mappings that are required for understanding the conceptual metaphors of idioms might somehow detract from their learnability due to the cultural specificity of source domains.

Another reason relates to mental imagery of idioms. Boers et al. (2004a) made the claim that for idioms whose source domains are not culturally typical, the effectiveness of *etymological elaboration* can also be explained in light of the “dual-coding theory” (Clark & Paivio, 1991; Paivio, 1986) and “levels of processing theory” (Cermak & Craik, 1979; Craik & Lockhart, 1972). As they described it, “the activation of the literal or original sense of a figurative idiom is likely to call up a mental image of a concrete scene. Storing verbal information as a mental image is believed to pave an extra pathway for recall because the information is thus encoded in a dual fashion” (Boers et al., 2004a, p. 58). Furthermore, in linking mental images to the origins of the idioms, learners are likely to process them at a deeper level, which is conducive to retention. The results of research into the effectiveness of “dual-coding” and “levels of processing”, however, is inconclusive. Some studies (e.g., Boers et al., 2008, 2009), for example, showed that mental images were only effective for the comprehension and retention of the meanings rather than linguistic form of idioms. Steinel, Hulstijn, and Steinel (2007) also found that idioms that are less transparent in meanings were less susceptible to visualization, and therefore led to less success in learning. Boers and Demecheleer (2001) similarly found that imageable idioms, “idioms that have associated conventional images” (p. 255, also see Lakoff, 1987, p. 447), might not call up the same conventional scene in ESL learners’

minds as they did in native speakers' due to cross-linguistic and cross-cultural variation. As they put it, "Conventions differ across cultures, so that straightforward images in one culture need not be self-evident in another" (ibid, p. 256). Therefore, it seems that complexity of utilizing mental images for the acquisition of idioms may limit the usefulness of "dual-coding" and "level of processing".

Metaphorical awareness is a third factor contributing to the difficulty of learning idioms. While metaphorical awareness was found in several studies to be beneficial for the understanding and retention of idioms (e.g., Boers, 2000; Guo, 2007), raising ESL learners' metaphorical awareness is not so straightforward, for the content and form of metaphorical expressions differ across cultures (Deignan, 2003; Kovecses, 1995). A typical example is Deignan, Gabrys and Solska's (1997) study that examined the variations in the metaphorical expressions of English and Polish and the consequent comprehension problems that Polish learners of English encountered in understanding English metaphors. Their results revealed that although Polish learners performed well on idiomatic expressions of the same conceptual metaphors and equivalent or different linguistic expressions, they had difficulty deciphering English idioms that used different conceptual metaphors, or words and expressions with similar literal but different metaphorical meanings. Littlemore (2001) also found that L2 learners who had a holistic cognitive style were more advantageous over those with an analytic cognitive style in terms of processing metaphors. Littlemore argued that since analytic students are better at learning the literal meanings of English words and expressions, they might have problems understanding the metaphorical meanings of idioms that involved creative thinking.

While metaphorical awareness is undoubtedly crucial for the development of ESL learners' knowledge about idioms, their success in linking the literal meanings to the metaphorical or figurative meanings of idioms seems to be even more essential. A number of researchers (e.g., Matlock & Heredia, 2002; Kecskes, 2000; Lontas, 2002) found that, instead of directly retrieving the metaphorical meanings of idioms, ESL learners' processing of the literal meanings of idioms usually preceded that of the figurative meanings, and they often resorted to the literal interpretation for the comprehension of figurative meanings. Particularly Cieslicka (2006), based on her study on Polish ESL learners' processing of 40 English idioms, made the claim that "literal meanings of L2 idiomatic items will continue to enjoy a more salient status than their figurative meanings, irrespective of whether an L2 idiom is highly familiar or less familiar to the L2 user" (p. 121). Cooper's (1999) study also showed that in comprehending an idiom, the strategies that ESL learners most frequently employed were discussing and analyzing the idiom and using the literal meaning of the idiom. Although the use of literal meanings for the understanding of figurative meanings seems to be fruitful for idioms of a high degree of transparency, that is, those of considerable "semantic overlap or similarity between the literal and the figurative meanings of an idiom" (Steinel et al., 2007, p. 478), for idioms that are opaque and non-compositional, a heavy reliance on the literal meanings can sometimes be counterproductive. Abel (2003), for instance, found that German ESL learners' analysis of the individual constituents of opaque, non-compositional idioms in general led to the incorrect interpretation of their figurative meanings. Steinel et al.'s (2007) study further indicated that the high degree of transparency of idioms did not necessarily guarantee ESL learners' better understanding

and retention. In sum, it seems safe to conclude that discrepancies in the processing of the literal and figurative meanings of idioms may add to the difficulty of grasping and memorizing them.

2.4.2. Pros and cons of teaching receptive and/or productive knowledge of idioms

As Nation (2001) pointed out, “receptive vocabulary use involves perceiving the form of a word while listening or reading and retrieving its meaning. Productive vocabulary use involves wanting to express a meaning through speaking and writing word form” (p. 25). On the basis of the aforementioned research and the Interaction Hypothesis (Long, 1983b, 1996), the pros and cons of teaching receptive and/or productive knowledge of idioms will be analyzed in relation to comprehensible input (Krashen, 1982, 1985; Long, 1983b, 1985), focus on form (Long & Robinson, 1998), noticing the gap (Schmidt, 1990, 1994) and comprehensible output (Swain, 1985, 1995).

From the point view of comprehensible input, it is claimed that learners “progress along the natural order by understanding input that contains structures...that are a bit beyond [their] current level of competence” (Krashen, 1985, p. 80). This is also known as $i + 1$, whereby learners move from i , their current level, to $i + 1$, “the next level along the natural order, by understanding input containing $i + 1$ ” (ibid). Given the fact that “an ability to understand and use formulaic language (including idioms) appropriately is key to native-like fluency” (Simpson & Mendis, 2003, p. 420), explicit instruction on the receptive and productive knowledge of idioms can facilitate ESL learners’ successful transition from i (their current levels of proficiency) to $i + 1$ (native-like fluency). As Wright (1999) aptly pointed out, “[Idioms] are important because they are very common. It is impossible to speak, read, or listen to English without meeting idiomatic language.

This is not something you can leave until you reach an advanced level. All native speaker English is idiomatic” (p. 9). However, the disadvantage is that, while idioms used in English speech and writing are undoubtedly authentic, they are nonetheless not modified or elaborated input. In other words, they are not the kind of input that is comprehensible to learners. As mentioned before, idioms use conceptual metaphors that are closely related to their culture-specific source domains, making the comprehension and production of their figurative meanings particularly difficult for ESL learners, especially those who have a relatively low proficiency in English and therefore in general lack metaphor awareness and competence. Since comprehension is vital to acquisition from the point of view of comprehensible input, it follows that learners might not be able to readily move from i to $i + 1$ by simply being exposed to idioms.

For focus on form, the pros and cons of teaching the receptive and productive knowledge of idioms also co-exist. According to Long and Robinson (1998), focus on form involves “an occasional shift in attention to linguistic code feature-by the teacher and/or one or more student-triggered by perceived problems with comprehension or production” (p. 23). Idioms are good for focus on form instruction because of their non-compositionality. The transparency (or opaqueness) of idioms draws ESL learners’ attention to the literal meaning and thus the formal aspect of an idiom while decoding its metaphorical expressions that are essential to the comprehension of its meaning, and this allocation of attentional resources to L2 forms has been found beneficial for ESL learners’ lexical development (e.g., Ellis & He, 1999; Ellis, Tanaka, & Yamazaki, 1994). In addition, according to “dual-coding” and “level of processing” theories, ESL learners are able to understand and retain the meanings of an idiom on the basis of the mental images

they generate by attending to its formal properties. On the other hand, the fact that the bulk of the idioms do not emerge in naturally occurring discourse as their canonical forms may negatively affect the generation and development of form-meaning mappings. There is also empirical evidence showing that mental images, despite their effectiveness for aiding in the understanding and retention of the meanings of idiom, are not very useful in terms of the retention of the lexical composition of idioms (e.g., Steinel et al., 2007).

The beneficial role of teaching the receptive and/or productive knowledge of English idioms in promoting noticing the gap can possibly be explained by Tocalli-Beller's (2005) justification for her choice of riddles and puns in her dissertation. According to her, "The playful context and the need to resolve the inherent incongruity of the humor pushed students to think about language and notice gaps in their knowledge which were to be filled if the pun and humorous context were to make sense. This effort and problem-solving process allowed learning to be memorable and to make new connections in the students' mind." (p. 176). This statement fits in with the discussion of the pros and cons of teaching the receptive and productive knowledge of idioms here well. In decoding idioms based on their constituent components, ESL learners would be aware that the literal meanings of the idioms do not match the context. As a result, in drawing on their linguistic resources for the solutions to their non-understanding or misunderstanding, they will be more conscious of the discrepancies between the literal and figurative meanings of the idioms. Furthermore, in reflecting on the comprehension problems caused by idioms, learners are "forced" to pay attention to the meaning, form, and use of the idioms that do not exist in their L2 repertoire. This comparison of the

differences between the target language and interlanguage constitutes noticing the gap and fosters in-depth processing, which in turn contributes to better comprehension and retention. Likewise, to produce idioms correctly and appropriately, ESL learners need to be more cautious about the forms and meanings of idioms. They also need to discuss their uses of idioms with their peers or teachers in order to get the message across. Both of these efforts contribute to noticing the gap.

The downside is that since noticing the gap is assumed to occur mainly as a result of the provision of negative evidence in the form of corrective feedback through interactional adjustments, without teachers' explicit instruction on idioms, ESL learners may run the risk of noticing the incorrect solutions they reach regarding the metaphorical meanings of the idioms through their guesses based on context and assimilate them into their existing L2 system. Additionally, due to the complexity of decoding the figurative expressions of idioms, ESL learners' attentional resources may be disproportionately allocated. For example, they may prioritize the meaning of the target idioms over form. Although this unequal distribution of attention may be beneficial for comprehension, it will be problematic as far as output is concerned since idioms, similar to other formulaic language, are processed and produced in chunks, and therefore a lack of attention to form may result in the incorrect production of idioms.

2.4.3. Selection of relevant target idioms

Since the current study was only concerned with ESL learners' understanding of the definitions of the idioms, the selection of the target idioms was mainly aimed at facilitating the participants' interpretations of the meaning. Specifically I achieved this goal by focusing on source domains, mental images, metaphorical awareness and

competence, and transparency of the target idioms. First of all, in terms of source domains, the idioms selected for this study are the ones whose source domains of conceptual metaphors are salient across cultures. As Boers et al. (2004a) suggested, the advantage of using idioms of which source domain are culturally-salient rather than culturally-specific is that learners are able to “use their knowledge of the source domain as a clue (among others) to try and figure out idiomatic meaning autonomously” (p. 378). For example, the participants were able to use their knowledge about railway lines to understand the idiom *lose track of*. This similarity in source domain was also helpful for the retention of the meaning. Furthermore, the idioms selected are those containing key words whose literal meanings are by and large familiar to the participants. For example, at least one member of the dyad knew the meaning of the key word *mill* of the idiom *run of the mill*, as was measured through the pretest.

In the case of the use of mental images for the comprehension and retention of the target idioms, some idioms in this study are “sufficiently specific to call up rich images, susceptible to dual coding” (ibid, p. 381). Therefore, when the participants were deciphering target idioms, including *draw a line between*, *off the wall*, and *put the heat on*, they were able to use the mental images they had formed in their minds to help them understand and recall the meaning. Verbal and visual representations together enabled them to process the target idioms more deeply, which was also conducive to their retrieval of the meaning. In addition, some of the idioms in this study were presented to the participants both in their canonical forms (for example, *take at face value*) and non-canonical forms (for example, *be taken at face value*). Since this transformation did not result in a change in meaning, it allowed them to generate the form-meaning mappings of

the target idioms without much difficulty.

For metaphor awareness and competence, most of the target idioms are decomposable or analyzable, that is, the meaning of the whole idiom can be understood by examining its constituent components. Svensson (2008) suggested that the *verb* + *noun* type of idioms are more susceptible to decomposition since it is relatively easier to distinguish which part contributes to which meaning. For example, in decoding the target idioms *take the plunge*, the participants were able to analyze the meaning according to the verb (*take* means “decide to do”) and the noun (*plunge* means “something important or risky”) in it. The inclusion of analyzable idioms ensured that the participants who lacked metaphorical awareness or competence were able to understand the meaning of a target idiom by making use of its individual parts. Moreover, several of the target idioms are those of a high degree of semantic transparency (e.g., *keep abreast of*, *shift gears*, *part and parcel of*), which allowed the participants to understand their figurative meaning by virtue of their literal meaning or the key words. In a nutshell, in exploiting the source domains, mental images, compositionality, and transparency, the participants were able to comprehend the meaning of the target idioms more easily while paying attention to their lexical composition, noticing the use of idioms they were not aware of with mental efforts, storing the knowledge about idioms in their memories, and using them more carefully in their communication with peers.

2.5. Research Questions

In this study, I attempt to address the overarching question “How is peer-peer collaborative dialogue carried out in a SCMC environment and how does it influence ESL learners’ acquisition of the target English idioms?” This question, based on the

literature review, stems from the need for more empirical evidence regarding SCMC-based collaborative dialogue and L2 vocabulary gains from ESL learners' *linguaging* about the lexical items targeted for learning. Another motivation is that, while current studies on collaborative dialogue are in general quantitative, quasi-experimental in nature and seem mostly concerned with the linguistic properties (for example, the frequency and the focuses) of LREs, qualitative inquiry into the functions of collaborative dialogue, or more specifically the exploitation of L2 for language socialization and language learning, would undoubtedly offer additional insights. Furthermore, even in the few existing studies that investigated collaborative dialogue using a qualitative approach, language socialization and language learning were often examined separately. Given that sociocultural SLA views L2 development as situated participation in which learners draw on L2 for both language socialization and language learning (Pavlenko & Lantolf, 2000; Zuengler & Cole, 2005; Zuengler & Miller, 2006), the integration of these two functions would give a richer, more comprehensive picture of collaborative dialogue than would a focus on any one function alone. Finally, as mentioned before, lexical items emerging from LREs or selected as the learning targets were largely confined to simple, concrete nouns or humorous and playful uses of language, and the acquisition of these items was usually investigated in relation to learners' gain scores. There have thus been calls for more research that looks at lexical gains on vocabulary of higher level of difficulty through collaborative dialogue and a microgenetic account of how learners internalize co-constructed lexical knowledge through moment-by-moment interaction. The current study, to a great extent, serves the aforementioned purposes by gathering fine-grained data relating to the deciphering of the figurative meaning of the idioms that are frequently

used in academic discourse through real-time discussions. In offering a glimpse into the participants' creation of a social space in SCMC in which they participated in *linguaging* about the meaning of the target idioms, the current study aims to reveal how ESL learners made use of scaffolded assistance and appropriated “mediational means, such as language, made available as they interact in socioculturally meaningful activities” (Zuengler & Miller, 2006, p. 39) for the achievement of L2 lexical knowledge growth. Specifically, the research questions addressed in this study are:

1. What patterns of SCMC-based dyadic interaction do the participants engage in in deciphering the meaning of the target English idioms within the idiom-focused-dialogue (IFD) episodes?
2. What communication strategies do the participants utilize to manage and maintain their collaborative interaction within IFD episodes?
3. In what ways do the participants provide scaffolded assistance to each other during IFD episodes to achieve mutual comprehension of the meaning of the target idioms?
4. What are the characteristics of online collaborative interaction that dyads with high and low scores exhibited? What are the connections of these characteristics to their learning of target idiom knowledge?
5. How do the participants perceive the English idiom learning tasks, the use of text-based online chat for collaboration, as well as the effectiveness of IREs for English idiom learning?

2.6. Chapter Summary

Chapter 2 provides an overview of the few areas that are closely related to the examination of SCMC-based collaborative dialogue and its effects on L2 development.

Specifically the review of literature is organized around the key construct of this study, namely collaborative dialogue or LREs. It gives a detailed account of the definition of collaborative dialogue, its relationship to SLA, factors that impact its emergence, its connection to L2 lexical acquisition, along with its operationalization in SCMC. It also introduces corpus-based analysis of English idioms and the teaching and learning of English idioms. Terminologies central to sociocultural SLA such as mediation, internalization, scaffolding, and ZPD are accounted for and the way they were deployed for the analysis and interpretation of the data in this study is also elaborated. Issues in current studies relating to collaborative dialogue, L2 lexical acquisition, and SCMC are discussed so that how the current study may fill the gap in the existing literature is clearly revealed. The reasons for the selection of English idioms that are frequently used in academic discourse and the choice of the target idioms are also described. Finally, the research questions governing the current study and their rationale are provided. Chapter 3 introduces the approach to research, the participants, data collection materials and instruments, as well as the procedures for data collection and data analysis.

CHAPTER 3. METHODOLOGY

Chapter 3 provides an overview of the methodology employed in this study, that is, a qualitative, descriptive case study within the theoretical framework of sociocultural SLA. It begins with a thorough explanation of the rationale for the choice of a descriptive case study and proceeds to a detailed description of the research setting, participants, and the role of the researcher. Case selection and sampling are then elaborated. After that, it offers a thorough account of the pedagogical materials, notably the English idiom learning tasks and its rationale. Information is also provided about data collection materials and instruments, including the pre-task questionnaire, pre and posttests, reflective journals, stimulated recall protocols, as well as post-task survey and interviews. The chapter concludes with an in-depth discussion of the procedures for data collection and the quantitative and qualitative analyses conducted for addressing each research question.

3.1. Approach to Research

This study used a descriptive case study to examine how collaborative dialogue, or more specifically idiom-focused-dialogue (IFD), was carried out in a text-based SCMC environment. Specifically it focused on the patterns of dyadic interaction, the utilization of communication strategies, the provision of scaffolded assistance, the characteristics of collaborative interaction, and participants' perspectives on their online exchanges. As Yin (2014) described it, "A case study is an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be

clearly evident” (p. 16). The choice of a descriptive case study as the main approach to investigation to a large extent was motivated by this statement.

A perusal of the extant literature suggested that although Swain and her co-researchers introduced the construct of collaborative dialogue to the field of SLA, most of her own and succeeding studies were experimental, quantitative in nature, without sufficient attention to the contextual factors influencing the production of collaborative dialogue. However, as Johnson (1992) aptly pointed out, “If experimenters focus on inputs and outputs without attending to processes and contexts, they may completely miss the important events that most shaped the results. Without rich descriptions of what goes on, there is little basis for adequate interpretation” (p. 187). Watanabe and Swain (2007) similarly maintained that many of the questions concerning collaborative dialogue “cannot be answered from the quantitative analysis of LREs alone” (p. 124). Additionally, recent studies on collaborative dialogue revealed that the conduct of LREs, in both face-to-face (e.g., Watanabe, 2008; Dobao, 2012) and real-time (e.g., Lee, 2008; Peterson, 2012) communication, was largely influenced by the contexts of peer-peer collaborative interaction. Due to the fact that “Sociocultural approaches prioritize qualitative research methodology and pay close attention to the settings and participants in interactions” (Foster & Ohta, 2005, p. 403), it appears that the adoption of the type of methodology that is advantageous in examining collaborative dialogue in relation to its emerging context and various sociocultural factors is not only essential but also fundamental to a more complete and comprehensive understanding of *language* in SCMC.

A descriptive case study serves the above-mentioned purpose quite well since it “aims to present a detailed, contextualized picture of a particular phenomenon”

(Heigham & Croker, 2009, p. 71). Unlike the bulk of prior studies focusing on the linkage between episodes of collaborative dialogue and posttest scores, the current study did not seek to verify a causal relationship between collaborative dialogue episodes and L2 vocabulary learning or generalize the results, but rather attempted to give a thorough and clear account of how SLA stemmed from peer-peer interaction and how the co-constructed knowledge about the target English idioms was appropriated and internalized at an individual level within the context of ESL teaching and learning. The detailed description and in-depth analyses required for achieving this research objective dictated the dominant use of a descriptive case study, which intended to “understand the complexity and dynamic nature of the particular entity, and to discover systematic connections among experiences, behaviors, and relevant features of the context” (Johnson, 1992, p. 84).

The foregrounding of the case study approach, however, did not preclude the incorporation of a quantitative component. As Tocalli-Beller (2005), justifying her inclusion of quantitative data in her case study, reasoned, “to know if one task, one teaching method, one type of learning environment or one program is more effective than another, quantitative accounts can enrich the observations and qualitative analyses” (p. 59). Other researchers (e.g., Duff, 2008; Eisenhardt, 2002; Yin, 2003) made similar claims about the legitimacy of analyzing cases on the basis of quantitative evidence. Quantitative analyses in the current study were therefore conducted through a pre/posttest design measuring the growth of the participants’ target English idiom knowledge through their collaborative dialogue. Overall, quantitative evidence in this study undertook a “supportive, secondary role” (Creswell & Plano Clark, 2007, p. 67) and complemented

qualitative analysis so that “valid and well-substantiated conclusions” (ibid, p. 65) concerning SCMC-based collaborative dialogue could be drawn.

As the literature suggested, some prominent features of a case study include its boundedness, multiple sources of evidence, and interpretative stance. The descriptive case study design involved in the current study exhibited these features. For boundedness, Merriam (2002) noted that a case is a “bounded, integrated system” (p. 8). Chapelle and Duff (2003) further made the point that “In TESOL, a case typically refers to a person, either a learner or a teacher, or an entity, such as a school, a university, a classroom, or a program” (p. 164). The current study can be viewed as a single-case study in which the class was the case. It was concerned with the development of target idiom knowledge within a college-level academic writing class through a nine-week longitudinal study. Furthermore, as Yin (2009) pointed out, “within a single case, attention is also given to a subunit or subunits” (p. 50), and the subunits are often associated with the primary research questions of the case study (Yin, 2014). The subunits of analysis in this study consisted of the eight dyads undergoing the dialogic process intended to help them attain a full understanding of the meaning of the target idioms and their reactions to this whole learning process.

Additionally, the multiple sources of evidence in the current study were crystalized in the exploitation of a variety of quantitative and qualitative measures. Specifically, quotations and excerpts from interviews, stimulated recalls, chat transcripts, and reflective journals constituted the qualitative data, while descriptive quantitative analyses such as frequency counts, gains scores, and percentages were simultaneously conducted to supplement the qualitative analyses. Quantitative and qualitative data were

also triangulated to aid in the interpretation of the results and increase the validity of the findings.

Finally, for the accuracy of interpretation, Chapelle and Duff (2003) proposed several strategies, including having additional coders, consultation with case participants for their interpretations of data or findings, and the use of L1s for low L2 proficiency participants. This study adhered to these guidelines by incorporating additional coders for quantitative and qualitative data analyses, conducting member checks and peer debriefings, as well as employing the participants' L1 (Mandarin Chinese) for interviews and stimulated recalls. These measures, to a large degree, helped establish the trustworthiness of the case study by making "clear, credible, and convincing" arguments (Chapelle & Duff, 2003, p. 167).

3.2. Research Setting

The current study was conducted in a college-level advanced ESL academic writing course, English 101C: English for Native Speakers of Other Languages (hereafter referred to as ENGL101C), at Iowa State University during the spring semester of 2015. Prior to the data collection for this study, human subject approval was obtained from the university's Institutional Review Board (IRB) committee (see Appendix J). ENGL101C was a 16-week semester course, and the students and instructor met twice every week: once on Tuesdays and the other time on Thursdays. Classes on Tuesdays were lab sessions in which the students performed writing-related activities and tasks on the computer. Classes on Thursdays were in a face-to-face classroom where the instructor gave lectures and offered writing workshops. On top of classroom meetings, the instructor also held individual conferences with the students for the discussion of the

revisions of the drafts of their writing assignments. Throughout the study, I was the researcher and also the instructor for ENGL101C. There were 16 students enrolled in this class during the period of the current study.

The fitness of ENGL101C to the current study can be accounted for in three ways. First of all, to adequately fulfill the requirements of ENGL101C, the students needed to collaborate on a series of pair work and team projects. Therefore, their ability to engage in intercultural communication and contribute to classroom discussions was essential to their academic success. This study attempted to reveal the details of peer-peer collaboration when ESL learners were faced with cognitive demanding academic tasks. The difficulties and challenges that the participants experienced during collaborative interaction were thus useful for enhancing their collaborative learning. In addition, to successfully complete the writing assignments, it was important for the students to fully understand the content of the textbook and reading materials. Due to the frequent use of English idioms in academic discourse, knowledge about the meaning of the target idioms would help student comprehend the text they encountered in their study. This was particularly true with one ENGL101C assignment in which the students were required to watch an English movie together and create a website about it. Their grasp of the meaning of English idioms could undoubtedly help them understand the storyline of the movie and write a movie review of a better quality together. Furthermore, proper application of English idioms in the students' essays could make their writing more native-like and their communication more effective. Finally, on some occasions, students in ENGL101C were asked to use online chat for interaction. For example, since it was impractical for the students to watch the movie together during class time, they were

instructed to share their thoughts and reactions through online chat. The examination of their real-time discussions that the current study was targeted at was therefore essential for a more comprehensive understanding of the students' use of this tool for their L2 learning.

3.3. Participants

All 16 students in ENGL101C that I taught agreed to participate in this study. These students were placed in the class according to their scores on the writing section of the English placement test they took upon entering the university. Through contact with the participants for the first few weeks of the semester and their responses to the pre-task questionnaire, I had gained some preliminary knowledge of their demographic information. The participants' English proficiency was high intermediate, as determined by their self-reported TOEFL or IELTS scores (70 or above in TOEFL iBT or 6 or above in IELTS). Their average age was 19.9 years (range 18-22, SD = 1.25), with an average duration of residence in the US of 7.6 months (range 1-14, SD = 6.04) and an average length of English learning of 11.6 years (range 7-18, SD = 5.32). Since most of them had been in the United States for only a short time, they were adjusting to the new academic and social demands of college. Among the sixteen participants, nine were from the college of business (business, finance, and management), five were engineering majors (civil and computer), one was in nutritional science, and one was in chemistry. Eight of the participants were Chinese, one Malaysian, two Koreans, one Turk, one Bangladeshi and three Emiratis. Detailed demographic information about the participants is listed in Table 2.

Lucas (2004), arguing for the relatively small number of participants (n=10) in

Table 2. Demographic information of the participants (N=16)

Participants	L1	Gender	Age	English Proficiency Test taken	Test score	Major	Months in US	Years of English Instruction
A	Mandarin	Male	21	iBT	95	Mechanical Engineering	36	5
B	Mandarin	Male	22	iBT	98	Chemistry	18	5
C	Mandarin	Female	18	iBT	72	Business	6	12
D	Mandarin	Female	20	IELTS	6	Business	3	7
E	Mandarin	Female	20	IELTS	6	Business	3	5
F	Cantonese	Female	18	IELTS	7.5	Nutritional Science	6	14
G	Mandarin	Male	20	IELTS	6	Finance	8	9
H	Arabic	Male	19	IELTS	6	Accounting	18	12
I	Bangla	Male	19	SAT critical reading	510	Computer Engineering	2	11
J	Turkish	Female	20	IELTS	6	Business	7	14
K	Mandarin	Female	21	IELTS	6	Electrical Engineering	2	12
L	Mandarin	Female	20	IELTS	6	Accounting	19	12
M	Malay	Female	21	IELTS	7	Software Engineering	36	21
N	Arabic	Male	18	PBT	537	Management	8	9
O	Korean	Male	21	iBT	76	Management	24	8
P	Arabic	Male	20	IELTS	6	Finance	16	10

**Note.* Throughout the study, the stimulated recalls and post-task interviews were conducted in Mandarin Chinese for all Mandarin-speaking participants. For participants of other L1s, the stimulated recalls and post-task interviews were conducted in English.

her doctoral dissertation on ESL dyads' collaborative dialogue concerning English puns, made the point that it was the adequacy of the sample rather than the number of participants that mattered most to qualitative research. In particular, she, echoing Morse (1998), maintained that adequacy involved the collection of "a sufficient amount of data...so that the phenomena begin to repeat themselves" (p. 44) and explained the adequacy of her data in terms of the number and characteristics of the puns in the tasks she employed. To some extent, her concept of adequacy helped justify the number of participants in this dissertation. In total, the eight dyads collaborating on eight idioms across the four English idiom-learning tasks generated 256 IFD episodes, which appeared to be sufficient for the emergence of patterns of interaction, communication strategies, collective scaffolding, and microgenetic episodes. Likewise, each idiom elicited 16 instances of IFD so that how *linguaging* about lexical issues in academic contexts took place can be adequately examined. Additionally, stimulated recalls, along with post-task interviews, generated approximately 10 hours of audio recordings and 30 pages of transcriptions, which were enough to draw sound conclusions about the participants' perceptions of and attitudes toward SCMC-based collaborative dialogue.

3.4. The Role of the Researcher

Since in this study I used the students I taught as the participants for data collection, I played the role of both the researcher and the teacher. Being a researcher and a teacher simultaneously allowed me to link theory and practice more intimately. As the researcher, I was able to apply the concepts of sociocultural SLA to the investigation of the participants' online exchanges so that the way they interacted with each other and its connection to their L2 learning could be more systematically examined and thoroughly

understood. Furthermore, due to the situated nature of sociocultural SLA inquiry, being the researcher and the teacher at the same time offered me additional insights into the operationalization of the theoretical constructs in real-life ESL teaching and learning context. On the basis of the analysis of research data, I was at a better position of utilizing the new observations to enrich the theoretical basis of sociocultural SLA. This effort, in turn, could provide more proper guidance for my teaching practices. In the case of the current study, the role of the ESL teacher guaranteed the access to the participants and ensured the appropriateness of the design of the pedagogical materials. The role of the researcher, on the other hand, increased the effectiveness of data collection instruments and their implementation. Overall, the dual role made it possible for me to convert my existing knowledge about L2 teaching into a resource to inform my research, and exploit the empirical findings from my research to provide the participants instruction useful for their collaboration and vocabulary learning.

3.5. Case Selection and Sampling

According to Duff (2008), “Case selection and sampling are the most crucial consideration in case study research” (p. 114). For this study, the selection of ENGL101C students that I taught as the single-case under investigation was primarily based on convenience sampling, that is, “the researcher uses those who are available” (Dörnyei, 2007, p. 129). Duff (2008) argued that a convenience sampling could be purposeful as long as the case selected is typical of the population of interest. As far as ENGL101C students are concerned, their typicality was evidenced in several ways. First of all, as previously stated, the majority of the participants had just begun their academic studies in Iowa State University, and therefore they needed to use English for social and English

learning purposes. Second, from the point of view of dyad composition, both linguistically heterogeneous and homogeneous dyads were included in the collaborative interaction since half of the participants were from China. The dominance of Mandarin Chinese speakers was in line with the large proportion of Chinese students in the international student population at Iowa State University (46.23%, according to Iowa State University Fact Book, 2015-2016) and other colleges and universities in the US. As such, a combination of linguistically heterogeneous and homogeneous dyads was a true reflection of the dyad composition of ESL courses. Finally, the participants in general lacked the knowledge of the idioms that are frequently employed in academic discourse, not to mention the use of them for academic writing. As a result, their co-construction of the meaning of the target idioms was representative of the learning process occurring when ESL learners were grappling with real-life, difficult L2 problems. Additional advantages of the convenient sampling, as Duff (2008) mentioned, include the ease of obtaining access to and also informed consent from the participants, more informative data concerning the case under investigation, and a more thorough understanding of the research context.

3.6. Materials

The materials used for data collection in this study can be roughly divided into two categories: one is the pedagogical materials, which consist of the English idiom learning tasks, and the other is data collection materials and instruments, including a questionnaire, a pretest and posttests, reflective journals, stimulated recalls, a survey and interviews. A detailed description of each of these materials is presented below. Altogether, they addressed the research questions by generating data revealing the

participants' demographic information, the operationalization of SCMC-based collaborative dialogue, target idiom knowledge development, as well as their perspectives on the use of text-based online chat for collaborative interaction.

3.6.1. English idiom learning tasks

In this study, English idiom learning tasks were implemented to foster the growth of the participants' receptive and productive knowledge about the meaning of the target idioms. For the development of receptive knowledge, echoing Simpson and Mendis' (2003) recommendation for idiom-focused pedagogical materials, two idiom-in-context tasks, which were based on the sixteen target idioms, were created through the "Quiz" activity plugin on Moodle (See Appendix D for the whole tasks). Each task included eight excerpts drawn from the *Corpus of Contemporary American English* (COCA) (Davies, 2008) that illustrated the contexts in which these idioms were often used. As Simpson and Mendis noted, using excerpts from a corpus to illustrate idiom usage was beneficial in that "it provides not only attested examples of idioms in use but examples embedded in contexts that learners will find familiar and relevant" (ibid, p. 438). In other words, in working with their partners on the contextual clues, the participants engaged in the kind of tasks they would undertake in real-life situations such as academic lectures or textbook reading. Simpson and Mendis also suggested that the authentic discourse contexts of idioms should be rich in lexical and semantic cues that would help the participants draw inferences about the meaning. Following this criterion, the excerpts were carefully selected from the concordance of COCA and were assessed by two native speakers of English who were the former MA students in Applied Linguistics and Technology for their appropriateness. In line with Chapelle's (2003) proposition that

good CALL tasks should take into consideration “how to design materials that can direct learners’ attention to particular linguistic forms within the input” (p. 41), the target idioms were also made salient and highlighted through the use of a bold, red font and italicization so that the participants could more easily distinguish them from their surrounding text. To successfully complete the idiom-in-context tasks, the participants asked to collaborate on the meaning of the target idioms and also provide justification. In jointly figuring out the definitions of these sixteen idioms, the participants read the excerpts on the computer screen and typed in their answers, which were then automatically saved in the “Quiz” activity plugin for later retrieval and review (see Figure 2).

For the promotion of productive knowledge, a text reconstruction task was

Question 2
Not yet answered
Marked out of 1.00
Flag question
Edit question

Read the following excerpts from COCA and figure out the meaning of the idiom from its context.

There are championships on the line and important games to be won. But there's increasing evidence that players' health may also be on the line. We know that physical collisions are ***part and parcel of*** the game, but there's new evidence that blows to the head which do not cause concussion may yet have deadly consequences.

Part and parcel of probably means

You and your partner's reasons for the meaning of ***Part and parcel of***

Paragraph B I [List Icons] [Link Icon] [Unlink Icon] [Indent Icon] [Outdent Icon] [Image Icon]

Path: p

Next

Figure 2. Screenshot of the idioms-in-context task

introduced to the participants one week after they completed each of the two idioms-in-context tasks through the “Wiki” activity plugin on Moodle (See Figure 3). It consisted of eight new excerpts from COCA that included the idioms discussed by the participants during the previous idiom-in-context task. These excerpts were similar to their counterparts in the idiom-in-context task in terms of length and level of difficulty, and had been manipulated by me to demonstrate the incorrect use of the target idioms (See Appendix E for the whole tasks). To accomplish the tasks, the participants needed to identify and correct the errors in the excerpts collaboratively through SCMC-based interaction. The rationale for the deployment of text-reconstruction tasks for the examination of the productive use of the target idioms was that they “provide a meaning-focused context to raise learners’ awareness of the discoursal use of the target linguistic feature” (Abadikhah, 2011, p. 281) and are the common practices that researchers of collaborative dialogue often use (e.g., Malmqvist, 2005; García Mayo, 2002; Nassaji & Tian, 2010; Storch, 2002, 2007) to elicit LREs. Therefore, it was most likely that in

Text-Reconstruction Tasks

Instruction: Each of the sentences below contains one incorrect use of the idioms you and your partner have discussed. Please work in pairs, find the errors and correct them based on your understanding of the meanings of the idioms. You also need to provide justifications for the corrections.

View Edit Comments History Map Files Administration

Printer-friendly version

Text-Reconstruction Tasks

- Both expansions are reasonable, given common roots in public purpose. Such a distinction may seem like **off-the-wall**, the difference between the public interest and general welfare is one just of degree.
- Jean is known for "**splitting hairs**, arty and odd stuff " sometimes using a Holga (a plastic toy camera with a plastic lens), making derivative images from 35mm slides, or shooting architectural images transformed into designs and using composition which emphasizes design, line and color, rather than a mere recording of a scene.
- If they rely on public records, then they should be required to keep up with the changes in these records. They should also provide mechanisms for filing complaints if the online data are erroneous, and they should make proper corrections in a timely fashion, the way those who **ring a bell** credit records are expected to do.
- On the other hand, the Indian Supreme Court in this case did not merely **take** the government **the plunge** for its failures. Government experts essentially became advisors to the Court as it drove policy implementation forward.
- There are many opportunities for primary care to be involved in the identification, diagnosis and management of AF in order to reduce the incidence and devastating consequences of stroke. There have been advances in our understanding of AF and clinicians need to **come into play** developments and to understand and use the range of guidelines and clinical management tools available to them.

ADMINISTRATION

- Wiki administration
 - Edit settings
 - Locally assigned roles
 - Permissions
 - Check permissions
 - Filters
 - Logs
 - Backup
 - Restore
- Course administration
- Switch role to...
- My profile settings

NAVIGATION

- Home
- My home
- Site pages
- My profile
- Current course
 - Engl 101C - 7 - S15
 - Participants
 - Badges
 - Mr. Xuan Teng, xuanteng@iastate.edu, 307 Ross Hall
 - 11 January - 17 January
 - 18 January - 24 January
 - 25 January - 31 January

Figure 3. Screenshot of the text-reconstruction task

editing the excerpts collaboratively, dyad members were able to utilize their existing knowledge about the target idioms to reconstruct contextually sensible sentences.

3.6.2. Data collection materials and instruments

The data collection materials and instruments consisted of a pre-task questionnaire, a pre-test for the selection of target idioms, reflective journals, the immediate and delayed posttests, stimulated recall protocols, post-task survey and interviews, along with computer equipment and software. The details of these materials and instruments are elaborated below.

3.6.2.1. Pre-task questionnaire

The questionnaire focused on the participants' background information, their attitudes toward peer-peer collaboration, English vocabulary learning, the use of text-based online chat for communication, and their knowledge of English idioms. It involved eight short-answer questions that elicited their demographic information such as nationalities, L1s, TOEFL or IELTS scores, ages, major areas of study, length of learning English, and residence in the US. It also contained two open-ended response items: one asked the participants to elaborate on their experiences of and use of strategies for learning English vocabulary, and the other instructed them to write down the two idioms they knew so that how they conceptualized English idioms can be better understood. Additionally, the questionnaire used twenty five Likert-scale items ranging from "strongly disagree" to "strongly agree" to determine their perceptions of and feelings about collaboration with their peers, the usefulness of discussions with peers for vocabulary learning, and the role of text-based online chat in their daily communication (see Appendix A).

3.6.2.2. Pretest and target idioms

The pretest consisted of forty idioms compiled from various sources, including Simpson and Mendis' (2003) list of useful idioms for English for Academic Purposes (EAP) curricula and their findings on the most frequent idioms in the *Michigan Corpus of Academic Spoken English* (MICASE), along with the idioms recommended by O'Keefe et al. (2007) as suitable for ESL teaching and learning. The reasons for confining the target idioms to highly frequent ones in academic discourse are their relevance to the participants' learning needs and the comparatively high level of difficulty they may pose for intermediate English learners. According to Simpson and Mendis (2003), idioms are widely employed in monologic and dialogic academic speech, and their lack of transparency of meaning is very likely to cause L2 learners' listening and reading comprehension problems. Therefore, the collaboration on the definitions of English idioms closely resembles the real-life language issues that the participants will be required to solve in their academic studies. Additionally, the substantial metacognitive efforts needed for decoding the meanings of English idioms on the part of L2 learners (Cooper, 1999) justifies the choice of them as the learning targets for the current study simply because in generating collaborative dialogue around English idioms, the

-
- I. I don't remember having seen this word before.
 - II. I have seen this word before, but I don't know what it means.
 - III. I have seen this word before, and I think it means _____ (synonym or translation).
 - IV. I know this word it means _____ (synonym or translation).
 - V. I can use this word in a sentence: _____. (Write a sentence)
- (If you do this section, please also do Section IV)

Figure 4. The vocabulary knowledge scale (VKS) (Based on Paribakht & Wesche, 1997, p. 180)

participants are able to demonstrate how they, in face of challenging L2 issues, make use of *language* for the resolutions and internalization, without the assistance from the experts such as the teacher.

The aforementioned two native speakers reviewed the forty idioms and confirmed their accuracy and common use in academic speech. The test asked the participants to indicate their familiarity with the meaning of these forty idioms through their responses to the Vocabulary Knowledge Scale (hereafter referred to as VKS). Originally developed by Paribakht and Wesche (1993), the VKS measures L2 learners' knowledge of the definitions of a particular word on a five-point scale ranging from "total unfamiliarity through recognition of the written word and some idea of its meaning, to the ability to use the word in a sentence" (p. 15; see Figure 4). For clarity, I replaced the use of "word" in the VKS with "idiom" to better reflect the learning objectives of the current study (see Appendix B for the list of the forty idioms and a sample idiom question using the VKS). In completing the pretest, the participants were instructed to put a check mark by the level that represented their current knowledge about the meaning of the idioms. Among the forty idioms, sixteen that all participants indicated that they had never seen before or had seen before but did not know what they meant (marking I or II on the VKS) were selected as the target idioms for instruction. To reduce the cognitive burden on the participants, the sixteen target idioms were structurally and semantically different from each other (see Appendix C for the target idioms used in the current study and their definitions). Once again, the two native speakers' opinions were referred to for the confirmation of the structural and semantic differences.

3.6.2.3. Reflective journals

After completing the idiom-in-context and text-reconstruction tasks, each participant was instructed to write a reflective journal of his or her experiences of collaborating with peers on the definitions of the target idioms in SCMC. The writing prompts for the reflective journals were adapted from Lee's (2008) guidelines for student reflection on online feedback negotiations and error correction, and specifically asked the participants to elaborate on their overall experiences of online exchanges with their partners, provide details about the dialogic co-construction of the meaning and the degree to which they perceived the collaboration as beneficial, describe the moments of the SCMC-based dyadic interaction they found particularly useful or challenging, and offer additional comments to explain their feelings about learning the target idioms through pair work (see Figure 5). As Dörnyei (2007) noted, reflective journals are “by definition

Reflective Journal

1. What are your overall experience of online exchanges with your partners?
2. Explain how you and your partner discussed the meanings of the idioms and whether you perceive the collaboration as beneficial
3. Describe the moments of online chatting you find particularly useful or challenging.
4. Offer additional comments to explain your feelings about learning the idioms through collaboration.

Entry*

Paragraph B I [List] [Link] [Unlink] [Image]

Path: p

Save changes Cancel

There are required fields in this form marked *.

Figure 5. Screenshot of the reflective journal

an insider account” (p. 157) in that they “try and elicit the participants’ own descriptions and interpretations of events and behaviors...as they keep records of their own feelings, thoughts, or activities” (ibid). Additionally, the fact that the participants wrote their reflective journals immediately after their collaborative work under my supervision offered “a self-report format that reduces inaccuracies stemming from not remembering something correctly, because when writing their entries participants recall recent rather than distant events” (ibid, p. 158). The journal entries were saved into the archives of the “Journal” activity plugin of Moodle and subsequently retrieved for data analysis.

3.6.2.4. Immediate and delayed posttests

In this study, the posttests assessed the participants’ understanding and retention of the meaning of the target idioms. In other words, the current study regarded “vocabulary acquisition as only one aspect of vocabulary learning, learning word meaning” (Kim, 2008, p. 119). Particularly there are three types of posttests: immediate posttests, short-term, one-week delayed posttests, and long-term, two-week delayed posttests. The participants took the immediate posttests right after they completed the idiom-in-context tasks and the short-term delayed posttests immediately after the completion of the text-reconstruction tasks. It should be noted here that the participants’ performance on the short-term delayed posttests was viewed as the manifestation of the delayed effects of SCMC-based collaborative dialogue rather than immediate gains given their prior exposure to the meanings of the target idioms in the idiom-in-context tasks.

Both the immediate and short-term delayed tests were intended to evaluate the participants’ recognition and production of the target idioms. For the assessment of recognition or receptive knowledge, the immediate posttests used matching questions in

which the participants were asked to pair the target idioms with the corresponding definitions. The definitions were taken and adapted from a wide array of online dictionaries such as Longman Dictionary of Contemporary English Online (www.ldoceonline.com), The Free Dictionary (www.thefreedictionary.com), and Merriam-Webster Online (www.merriam-webster.com). The assessment of production or productive knowledge in the immediate posttests, on the other hand, involved supplying the definitions of the target idioms. The format of the short-term delayed posttests was the same as the immediate posttests, and to minimize the effect of memorization, in the delayed posttests the definitions were phrased differently and the order of the eight target idioms was also altered. Both the immediate and short-term delayed posttests took approximately ten minutes to complete. To ensure that the participants' performance on the posttests was a true reflection of their learning of the target idioms as a result of their collaborative dialogue, they were not informed that they would take a posttest in advance. For the long-term delayed posttests, the participants were instructed to use the VKS to indicate their knowledge of the target idioms. An independent trained coder who was also a doctoral student majoring in Applied Linguistics and Technology and I scored and analyzed their responses (See Appendix F for both the immediate and delayed posttests).

3.6.2.5. Stimulated recall protocols

As Fox-Turnbull (2009) pointed out, stimulated recalls have been widely adopted in research studies concerning classroom interaction for gathering introspective data. Especially for studies on collaborative dialogue, stimulated recall data reveal the participants' "perspective of their behavior during their interaction which may not be apparent from the recorded pair talk alone" (Watanabe & Swain, 2007, p. 127). In this

study, stimulated recall protocols were developed for the elicitation of information regarding 1) the participants' thoughts during the occurrence of IFD episodes, 2) their grasp of the meaning of the target idioms, and 3) clarification of fragmented sentences and spelling errors (See Appendix G). Additionally, in accordance with the interactional features of SCMC discourse, a few adjustments were made to the protocols. For instance, for the patterns of interaction, following Watanabe and Swain (2007, 2008), the focus was on Storch's (2002) description of the characteristics of the *collaborative*, *dominant*, *passive*, *expert*, and *novice* role of the participants. However, in real-time communication, it was very unlikely that one member of the dyads would formulate a long stretch of discourse without the interruptions of his or her partner. As a result, if a participant produced significantly more turns than his or her partner, he or she would be asked during the stimulated recalls what he or she was thinking at that point of time.² Likewise, a participant would be asked to explain his or her own thoughts if he or she generated significantly fewer turns than his or her partner or there were time lags between the initiation of and reply to a message. The participants' responses to the stimulated recall questions were recorded by the Macintosh software application GarageBand.

3.6.2.6. Post-task survey and interviews

A survey was used to inquire about the participants' feelings of their collaboration with their partners on the target idioms via text-based online chat. It consisted of sixteen items that asked the participants to rate each one on a Likert-scale ranging from "Strongly Disagree" to "Strongly Agree" (see Appendix H). A follow-up interview with each participant was also conducted after the survey. It consisted of ten semi-structured

² Following Smith's (2003) definition of turns in SCMC, a turn in this study is counted as "a transfer of the 'floor' from one participant to the other" (p. 42) rather than each line of the chat transcripts.

questions that sought to clarify the participants' responses to the survey questions and gather their further comments and thoughts on working with their partners, the use of SCMC for collaborative interaction, and the usefulness of SCMC-based collaboration for learning the target English idioms (see Appendix I). The dialogues that took place during the interviews were audio recorded via GarageBand.

3.6.2.7. Computer equipment and software

Much of the data collection was conducted through the plugins on Moodle. Particularly text-based online chat was operationalized through the *Chat* activity plugin. During the data collection period, eight chat rooms were set up that allowed the participants to engage in real-time interaction with their partners (see Figure 6). Their chat transcripts were automatically saved after the completion of the tasks and were retrieved and reviewed for the analysis of collaborative dialogue. Other plugins such as *Wiki*, *Journal*, *Quiz*, *Questionnaire*, and *Survey* were employed to administer the tasks, record the participants' reflections, submit their responses to the posttests, and document their perceptions and attitudes. The Macintosh software application QuickTime Player was used for screen recordings.

3.7. Data Collection Procedures

The data collection procedures followed an embedded design in which quantitative data were embedded within a descriptive case study. According to Creswell and Plano Clark (2007), an embedded design can use either a one-phase or a two-phase approach for the embedded data. This study utilized a one-phase approach since the quantitative data were collected and analyzed concurrently with the qualitative data. The choice of this method was largely due to the fact that descriptive analysis in this study

(for example, gain scores and frequency counts) served merely to facilitate the interpretation of the findings gained through the qualitative data.

The actual data collection occurred during the regular class time of ENGL101C and in total lasted for nine weeks. The procedures involved in the data collection are listed in Table 3. On the basis of the English idiom learning tasks, the data collection can be divided into three stages, namely pre-task, on-task, and post-task. In the pre-task stage, after giving their informed consent, all participants responded to the pre-task questionnaire and the pretest. Sixteen idioms were singled out as the learning targets, and the COCA excerpts that contained these sixteen idioms were extracted for the creation of the idioms-in-context and text-reconstruction tasks.

Stage two was the core of this dissertation study since it concerned the use of English idiom learning tasks for the elicitation of SCMC-based collaborative dialogue

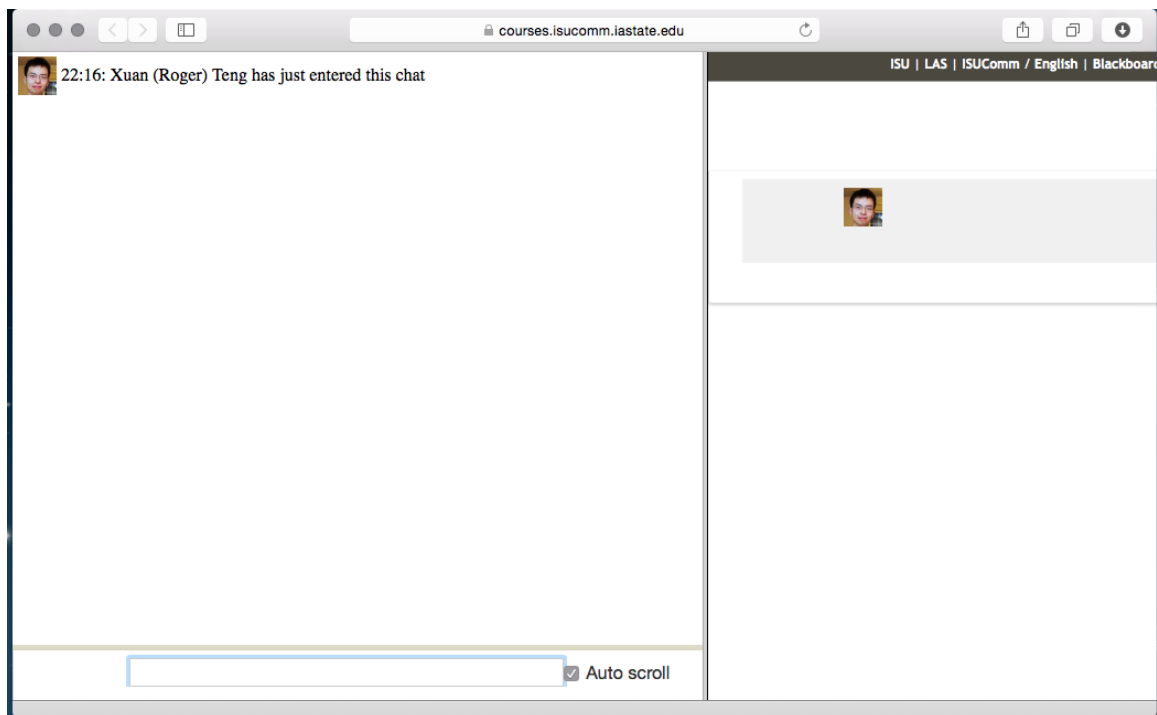


Figure 6. Screenshot of the interface of the Chat plugin of Moodle

and the assessment of the growth of knowledge about the target idioms. In particular it consisted of two cycles of data collection, and each cycle was comprised of: 1) an idioms-in-context task, 2) an immediate posttest, 3) a text-reconstruction task, 4) a short-term delayed posttest, 5) reflective journals, and 6) stimulated recalls. As mentioned before, each cycle of data collection was conducted during the regular scheduled 80-minute ENGL101C class that was held in a computer lab. In each cycle, the participants were assigned to their individual chat rooms for their online interaction. During the idioms-in-context tasks, the idioms were presented one at a time, and the order of presentation was fixed across all dyads. The participants needed to read the excerpts from COCA on the computer screen and discussed the meaning of the eight target idioms with their partners via Moodle Chat. The eight dyads were encouraged but not required to chat in English, and they were told not to look up the idioms in online dictionaries or consult with me during their task completion. As soon as all dyads finished their online discussion and submitted their answers, I offered the correct meaning of the target idioms through a PowerPoint presentation. Once the PowerPoint presentation was finished, all participants were given the ten-minute immediate posttest. After their responses were collected, they were instructed to write a reflective journal that reported their experiences of and feelings about their dyadic interaction. The text-reconstruction tasks were administered one week after the idioms-in-context tasks and were followed by short-term delayed posttests and reflective journals. In collaborating on the text-reconstruction tasks, the dyads found and correct the erroneous usage of the target idioms in the new excerpts from COCA together on their own wiki pages based on their exchanges in Moodle Chat.

Table 3. Data collection procedures

1st week (Pre-task)	2nd week (Cycle 1, On-task)	3rd week (Cycle 1, On-task)		4th week (Cycle 2, On-task)	5th week (Cycle 2, On-task)		6th week (Post- task)	7th week (Post- task)	8th week (Post- task)
Tue	Tue	Tue	Wed-Fri	Tue	Tue	Wed-Fri	Tue	Tue	Tue
Pre-task questionnaire (15 minutes, in class) Pretest (VKS, 20 minutes, in class)	“Idioms-in-Context” task 1 (50 minutes, in class) Immediate posttest 1 (15 minutes, in class, matching & definition supply) Dyads: A&E B&F C&G D&H I&M J&N K&O L&P	“Text-reconstruction” task 1 (50 minutes, in class) Short-term delayed posttest 1 (15 minutes, in class, matching & definition supply) Reflective journal 1 (15 minutes, in class) Dyads: A&E B&F C&G D&H I&M J&N K&O L&P	Stimulated recall 1 (15-20 minutes for each participant, out-of-class)	“Idioms-in-Context” task 2 (50 minutes, in class) Immediate posttest 2 (15 minutes, in class, matching & definition supply) Dyads: A&E B&F C&G D&H I&M J&N K&O L&P	“Text-reconstruction” task 2 (50 minutes, in class) Short-term delayed posttest 2 (15 minutes, in class, matching & definition supply) Reflective journal 2 (15 minutes, in class) Dyads: A&E B&F C&G D&H I&M J&N K&O L&P	Stimulated recall 2 (15-20 minutes for each participant, out-of-class)	Long-term delayed posttest 1 (15 minutes, in class, VKS)	Long-term delayed posttest 2 (15 minutes, in class, VKS)	Post-task survey (10 minutes, in class) Follow-up interviews (15-20 minutes for each participant, out-of-class)

Their reconstructed excerpts were then saved in the wiki pages and accessed by me for further data analysis.

Echoing Gass and Mackey's (2000) suggestions for carrying out stimulated recalls, in both cycles, I conducted the stimulated recall interviews with the participants one to four days after the text-reconstruction tasks. Moreover, similar to Sato and Lyster (2006), the stimulated recall data in this study served two purposes. First, as numerous researchers (e.g., Lyle, 2002; Mackey & Gass, 2005; Stough, 2001) suggested, the participants' comments during the stimulated recalls revealed their cognitive processes when instances of IFD occurred so that how the dyads resolved idiom-related problems and co-constructed their knowledge of the meaning of the target idioms can be more thoroughly understood. Second, the participants' comments on the language they produced during SCMC-based collaboration helped to validate the coding and analyses of IFD episodes.

To prepare for the stimulated recall interviews, I first reviewed in detail each dyad's screen recordings to obtain a holistic picture of their SCMC-based collaborative interaction. I also printed out all dyads' chat transcripts, perused them, and highlighted the IFD episodes. During the actual stimulated recalls, I went through the chat transcripts with the participants and asked them what was on their minds wherever an IFD episode was spotted. At the same time, the screen recordings were played to the participants to prompt their reflections. The idioms-in-context and text-reconstruction tasks were presented to the participants to facilitate recalls of the details of their collaboration. In the event that "participants may censor or distort their thoughts and ideas in order to present themselves more favorably" (Fox-Turnbull, 2009, p. 206), I intentionally avoided asking

yes or *no* questions such as “Do you mean...?” or “Were you thinking about...?” Rather, *WH*- questions, for example “What were you thinking at that time...?” or “How did you get this?” were the norm. According to Gass and Mackey (2000), in replying to *WH*- questions, the participants were more likely to express their own thoughts rather than say what I wanted them to say.

As previously stated, during the stimulated recalls, I sought to elicit three types of information from the participants: their mental processes, their comprehension of the target idioms, and clarification for the utterances that may cause misunderstandings such as fragmented sentences and spelling errors. The participants watched the screen recordings of their collaborative interaction in the chat rooms and reflected on their thoughts. The average time taken to complete each stimulated recall interview was 20 to 25 minutes. For all of the Mandarin-speaking participants, the stimulated recalls were conducted in Mandarin Chinese and audio recorded. Recordings of their stimulated recall comments were subsequently transcribed and translated by me who was also a native speaker of Mandarin Chinese. To ensure the accuracy of translation, I conducted the peer review by having the independent coder listen to the stimulated recalls and confirmed that the translations were consistent with what the participants intended to say. Discrepancies in the use of words and interpretations were resolved through discussions. Participants of other L1s answered the questions in English and their stimulated recalls were transcribed into verbatim transcripts by me and were peer reviewed by the independent coder.

The post-task stage consisted of the long-term delayed posttests, the survey, and the post-task interviews. Two weeks after the short-term delayed posttests all participants

took the long-term delayed posttests without any advance notice. After the long-term delayed posttests, all participants completed the post-task survey. Follow-up interviews were administrated one day after the survey in which the participants were asked to clarify and elaborate on their responses to the survey questions as well as to provide additional information regarding their perceptions of SCMC-based collaboration. Similar to the stimulated recalls, the interviews were conducted in Mandarin Chinese for the Mandarin-speaking participants and in English for the rest of the participants. Each interview typically lasted approximately fifteen to twenty minutes. I audio-recorded the interviews and then transcribed and translated the dialogues. The independent coder peer reviewed the translations and confirmed their accuracy and appropriateness. The transcriptions were then analyzed using open-coding; that is, I perused the transcriptions “for emergence of patterns and themes, by looking for anything pertinent to the research question or problem, also bearing in mind that new insights and observations that are not derived from the research question or literature review may be important” (Mackey & Gass, 2005, p. 241).

3.8. Data Analysis

Chat transcripts produced by the eight dyads in the completion of the idiom-in-context and text-reconstruction tasks, the participants’ answers to the posttest and survey questions, their reflective journal entries, along with transcripts of stimulated recalls and post-task interviews constituted the main source of data for this study. For the quantitative analysis, due to the small sample size, descriptive statistics, including means, standard deviations and percentages, were calculated to support qualitative analysis. For the qualitative analysis, I scanned through all of the chat transcripts to obtain a general

idea of their contents, and then following Darhower's (2002) suggestion of data reduction, I systematically selected IFD excerpts that demonstrated the dyads' problem solving and knowledge construction revolving around the target idioms, and linked the specific parts of the excerpts to the research questions. The stimulated recall and post-task interview transcripts were also analyzed thematically and holistically first, and relevant segments were then singled out to corroborate the interpretations of the chat transcript excerpts.

For the first research question regarding the patterns of interaction that the eight dyads exhibited during their SCMC-based collaboration, the participants' chat transcripts were closely examined using Storch's (2002) framework for identifying and categorizing the patterns of dyadic interaction based on "how the learners approached the task, the roles they assumed, and the level of involvement and contribution of each member of the dyad to the task" (p. 126). Specifically in light of the index of equality, "the level of contribution and control over the task" (Storch 2013, p. 37), and mutuality, "the level of engagement with each other's contribution" (ibid), the patterns of interaction were classified as collaborative, dominant/dominant, dominant/passive, and expert/novice (see Table 4 for a detailed description of the characteristics of these four patterns). As stated before, collaborative and expert/novice pairs consist of the collaborative orientations that can foster the production of LREs and the internalization of co-constructed L2 knowledge, whereas dominant/dominant and dominant/passive are the non-collaborative orientations that might have a negative effect on the occurrence of LREs and SLA. Furthermore, Storch (2002b) found that the collaborative orientations were characterized by discourse features including requests, explanations, phatic utterances (such as "yeah", "mm") and

repetitions that were not so salient in the non-collaborative pattern. To get a more accurate picture of the participants' patterns of interaction in SCMC, both the levels of equality and mutuality and the discourse features were taken into consideration.

Additionally, echoing Watanabe and Swain (2007), the

Table 4. Characteristics of the patterns of dyadic interaction (based on Ellis & Barkhuizen, 2005, p. 240)

Patterns of Dyadic Interaction	Description
Collaborative	<ul style="list-style-type: none"> - high equality, moderate to high mutuality - working together on all parts of the task - willing to offer and engage with each other's ideas - alternative views offered and discussed - resolutions acceptable to both participants
Dominant/Dominant	<ul style="list-style-type: none"> - moderate to high equality, moderate to low mutuality - unwillingness or inability to fully engage with each other's contribution - high level of disagreement - inability to reach consensus <p>Alternatively,</p> <ul style="list-style-type: none"> - high equality, low mutuality - division of labor - equal contribution to the task - little engagement with each other's contribution
Dominant/Passive	<ul style="list-style-type: none"> - equality and mutuality both moderate and low - dominant participant takes authoritarian stance and appropriate task - other participant adopts a passive, subservient role, with few contributions - little negotiation
Expert/Novice	<ul style="list-style-type: none"> - moderate to low equality, moderate to high mutuality - one participant takes control of task, and actively encourages other participant to participate

participants' comments on their online exchanges and their reflective journal entries were also employed to complement the findings from the analysis of chat transcripts. Apart from these qualitative data, the average number of words, turns, IFD episodes, time spent on tasks were calculated for each pattern of interaction to further illustrate the differences in mutuality and equality. The independent coder and I analyzed the patterns of interaction separately and achieved moderate inter-coder reliability as measured by simple agreement percentage (83%). If there was disagreement between us regarding the patterns of a particular dyad, we discussed the discrepancies until an agreement was reached.

The second research question involved a close examination of the language socialization that was evidenced in collaborative dialogue, and the first step of this process concerned the coding of IFD episodes. As mentioned before, IFD episodes were the embodiment of LREs in this study, and according to Swain (2001), LREs were defined as “any part of a dialogue where students talk about the language they are producing, question their language use, or other- or self-correct their language production” (p. 286). On the basis of the data collected from the dyadic interaction in the current study, I extended the definition of LREs to the dialogue that revolved around the meaning of the target idioms, notably idiom-focused-dialogue (IFD) episodes. The segmentation of IFD episodes followed Lucas' (2004) division of pun-related-dialogue in her doctoral dissertation. Specifically, each episode of pun-related-dialogue denoted “a complete sequence of interaction regarding a specific unit of meaning (the pun)” (p. 40) and was comprised of an opening, a development, and a closing. As Lucas maintained, pun-related-dialogue episodes were the operationalization of peer-peer collaborative dialogue

around preselected L2 features. Due to the similarities of the tasks employed in this study, each IFD episode consisted of and was also analyzed on the basis of an opening, a development, and a closing. Figure 7 shows an example of the basic structure of an IFD episode. Following this structure, the independent coder and I identified all of the IFD episodes across the eight dyads' chat transcripts and achieved inter-coder reliability percentage of 95.6%. Disagreements arising over the coding of IFD episodes were resolved through discussions.

Having determined the structure of IFD episodes, the identification of

IFD episode structure	Turn	Dyad member	Chat transcript	Explanation
Opening	1	A	i'm on question 4	A and E were signaling their attention to the target idiom
	2	E	take the plunge, means try?	
Development	3	E	Hello?	A and E were solving idiom-related problems and constructing target idiom knowledge together through <i>languaging</i>
	4	A	my opinion: take the risks	
	5	A	cuz the sentence is "if you take the plunge and jump ahead first"	
	6	E	i think here take the plunge = have the courage to do something	
	7	A	risky	
	8	E	like have an adventure?	
	9	E	yes	
			also because "learn in new and	
	10	A	innovative ways"	
	11	A	I agree with you	
	12	A	How about we combine answers? try new and challenging things with a lot of courage?	
Closing	13	E	I like it!	A and E reached consensus on the meaning of the target idiom
	14	A	Great! Let's go to the next one	

Figure 7. The basic structure of an IFD episode

communication strategies was performed on the basis of the online discourse management strategies proposed by Peterson (2009), including on-task discussion, requests for assistance, provision of assistance, use of continuers, off-task discussion, self and other-initiated correction, strategies use in combination. Discourse analysis was utilized for the in-depth investigation of the use of the aforementioned strategies within the selected IFD episodes. Meanwhile, stimulated recall comments and reflective journal entries were employed to supplement the findings of discourse analysis by accounting for the presence of these strategies. For quantitative analysis, frequency counts and percentages of instances of each of these strategies were obtained to determine how L2 socialization was achieved within IFD episodes. Due to the cyclical nature of qualitative case study data analysis (Duff, 2008), strategies that were not documented by Peterson (2009) but emerged repeatedly throughout the chat transcripts were also identified and investigated. The independent coder and I categorized the use of communication strategies separately and resolved our disagreements through discussions. The inter-coder reliability calculated using simple percentage agreement was 93.4%.

For the third research question concerning the provision of scaffolded assistance during IFD episodes, this study did not investigate scaffolding in SCMC-based collaborative interaction from the perspective of *alinguistic* terms or error correction, but focused on how the participants made use of L2 to assist each other in the attainment of co-constructed knowledge of the definitions of the target idioms. Particularly, Cooper (1999), examining ESL learners' on-line processing of English idioms, identified eight approaches employed for the comprehension of the meaning of the idioms, including repeating or paraphrasing idiom, discussing and analyzing idiom, requesting information,

guessing from context, using literal meaning, using background knowledge, referring to L1 idiom, and using other strategies. Although these approaches were only concerned with idiom comprehension at the individual level, they revealed ESL learners' cognitive activities when encountering figurative expression and therefore seemed to be quite relevant to the analysis of scaffolded assistance in the current study. On this basis, qualitative analysis of peer-peer scaffolding was mainly conducted through discourse analysis revealing how the members of the dyad offered each other assistance based on the aforementioned approaches in selected episodes of IFD. Quantitative analysis, on the other hand, demonstrated the frequencies and percentages of each of these approaches across the four tasks. The independent coder and I examined the instances of scaffolded assistance separately and compared our coding. Discrepancies in the identification of these approaches were discussed and resolved. The inter-coder reliability measured using simple percentage agreement was 92.6%.

The fourth research question concerns the characteristics of online collaborative interaction that dyads with high and low posttest scores exhibited and the connection of these characteristics to their learning of the target idioms. This question was investigated at three different levels: immediate and short-term, long-term, and microgenetic. As far as the immediate and short-term development was concerned, the evidence was obtained from the participants' scores of the matching questions on the immediate and short-term delayed posttests. The rating of the matching questions in these two posttests followed the dichotomous scoring; that is, if the idioms matched their definitions, the participants received one point, and if not, they gained zero point. The total scores for both posttests were therefore eight and the accuracy of the participants' answers was indicative of the

degree to which they understood and retained the meaning of the target idioms. The coder and I scored all test items and achieved 100% inter-coder reliability.

The long-term development was measured on the basis of the scores that the participants received on the VKS. The comparison between the scores that the participants gained on the pretest and the long-term delayed posttest was indicative of their target idiom knowledge growth. The scoring categories of the VKS are presented in Figure 8. Particularly self-reported idiom knowledge of categories I and II received points of 1 and 2 respectively. Category III and IV had two possibilities: If the participants provided the correct synonyms, translations, or explanations, they were rewarded three points; otherwise they received two points. For Category V, incorrect responses and correct synonyms, translations, and explanations were given the points of two and three respectively, and four points were assigned to sentences that are semantically appropriate but grammatically inaccurate. Only the sentences in which the use of the target idioms was grammatically and semantically correct were scored as five points. As Wesche and Paribakht (1996) pointed out, the VKS represented “gains that are large enough to be meaningful on a self-report scale but small enough to reflect changes

Self-Report Categories	Possible Scores	Meaning of Scores
I	1	The word is not familiar at all.
II	2	The word is familiar but its meaning is not known.
III	3	A correct synonym or translation is given.
IV	4	The word is used with semantic appropriateness in a sentence.
V	5	The word is used with semantic appropriateness and grammatical accuracy in a sentence.

Figure 8. The scoring for each of the categories in the VKS (Adapted from Paribakht & Wesche, 1997; cited in Kim, 2008, p. 119)

in knowledge during relatively limited instructional periods...[it] should be viewed as a practical instrument for use in studies of the initial recognition and use of new words” (p. 38). On this basis, the comparison of VKS scores can be said to properly reflect the gains in the comprehension and retention of the meaning of the target idioms during the nine-week study. The independent coder and I assigned scores to the participants’ responses on the VKS, discussed and resolved discrepancies in scoring, and achieved 97.3% inter-coder reliability.

Based on the posttest and VKS scores, I selected two dyads that had the highest and lowest scores as the focal participants for the analysis of the characteristics of collaborative interaction. For the examination of the connection of the characteristics to the focal participants’ target idiom knowledge growth, I adopted the microgenetic method, or more specifically, Tocalli-Beller’s (2005) case study table to document the focal participants’ target idiom learning during “moment-by-moment talk-in-interaction” (Markee, 2000, p. 44). I also adapted the cases study table to better match the procedures of the current study. Specifically, the focal participants’ pre and posttest responses, their IFD episodes during the idiom-in-context and text-reconstruction tasks, and their explanations of the definitions of the target idioms during stimulated recalls were included and sequenced to clearly illustrate L2 learning in progress (See Table 5). The investigation of the characteristics of collaborative interaction in relation to microgenetic development allowed for detailed accounts of the internalization process through which individual ESL learners enhanced their expertise in *linguaging* by making the transition from other-regulated to self-regulated performance.

The fifth research question concerns the participants’ perspectives on the

Table 5. Case study table of microgenetic analyses (based on Tocalli-Beller, 2005, p. 85)

TI	Target idioms	
Dyad	Participant 1	Participant 2
Pre-test Week 8	Participant 1's pre-test response to the VKS	Participant 2's pre-test response to the VKS
Idioms-in-context task	The target idioms are embedded in the sentences that show the academic context in which they are often used so that the dyad could make inferences about the idioms' meanings	
Idiom-in-context task Week 10 or 12	Excerpts of the dyad's collaborative dialogue, or more specifically co-construction of the meanings of the target idioms	
Immediate posttests (productive posttests)	The sentences that participant 1 will create using the target idioms in the immediate posttests	The sentences that participant 2 will create using the target idioms in the immediate posttests
Text-reconstruction task Week 11 or 13	Excerpts of the dyad' collaborative dialogue, or more specifically discussion of the erroneous usage of the target idioms	
Stimulated Recalls Week 11 or 13	Participant 1's explanations of the meanings of the target idioms in the stimulated recall interviews	Participant 2's explanations of the meaning of the target idiom in the stimulated recall interviews
Short-term delayed posttests (productive posttests)	The sentences that participant 1 will create using the target idioms in the short-term delayed posttests	The sentences that participant 2 will create using the target idioms in the short-term delayed posttests
Long-term delayed posttest	The explanations, synonyms, or translations provided and the sentences created by participant 1 in the VKS	The explanations, synonyms, or translations provided and the sentences created by participant 2 in the VKS

appropriateness of the English idiom learning tasks, their SCMC-based collaborative interaction, and the effectiveness of IFD episodes for English idiom learning. Answers to this question lay in the participants' responses to the post-task survey and interview questions. In particular, quantitative data were obtained using the numerical values that I assigned to their responses to each survey item, with 1 equaling *Strongly Disagree*, 2 equaling *Disagree*, and so on up to 6 equaling *Strongly Agree*. All responses were summed and means were calculated in order to interpret their perceptions and attitudes. A frequency count of the responses to each item on the survey was also conducted to complement the interpretations based on mean scores. The participants' comments on their responses to the survey items during the interviews were used to support findings from the analysis of quantitative data. Emerging themes and patterns that were relevant to a better understanding of their perspectives on online exchanges were coded and labeled by the independent coder and me. Due to the moderate inter-coder reliability (78.6%), I discussed the codes/labels and themes with the independent coder to resolve discrepancies and obtain new or additional observations.

Table 6 lists the five research questions in the current study, the data sources for their answers, the unit of analysis, and the data analysis methods.

3.9. Chapter Summary

This chapter elaborates on the methodology deployed for finding the answers to the five research questions in this study. It offers detailed information on the choice of a descriptive case study conducted through quantitative and qualitative analyses and its rationale, and provides comprehensive description of the pedagogical materials and data collection materials and instruments employed for the elicitation of SCMC-based the

collected data so that how each research questions were addressed was clearly revealed.

Chapter 4 presents the results and findings of this study.

Table 6. Summary of research questions, data sources, unit of analysis, and data analysis methods

Research questions	Data sources		Unit of analysis	Data analysis methods
1. What patterns of SCMC-based dyadic interaction do the participants engage in in deciphering the meaning of the target English idioms within the idiom-focused-dialogue (IFD) episodes?	Primary	Secondary	Each dyad across the four tasks	Storch's (2002) categorization of four patterns of dyadic interaction: collaborative, expert/novice, dominant/dominant, and dominant/passive based on the level of equality and mutuality
	Discourse analysis of chat transcripts	Stimulated recalls Reflective journal entries		
2. What communication strategies do the participants utilize to manage and maintain their collaborative interaction within IFD episodes?	Discourse analysis of chat transcripts	Stimulated recalls Reflective journal entries	Each dyad across the four tasks	Peterson's (2009) categories of communication strategies
3. In what ways do the participants provide scaffolded assistance to each other during IFD episodes to achieve mutual comprehension of the meaning of the target idioms?	Discourse analysis of chat transcripts	Stimulated recalls Reflective journal entries	Each dyad across the four tasks	Cooper's (1999) approaches to processing of English idioms
4. What are the characteristics of online collaborative interaction that dyads with high and low scores exhibited? What are the connections of these characteristics to their learning of target idiom knowledge?	Immediate and short-term delayed posttest scores (matching questions) Pretest and long-term delayed posttest scores (VKS)	Chat transcript analysis Microgenetic analysis	Individual performance on the posttests Focal dyad throughout the current study	Dichotomous scoring VKS scoring Tocalli-Beller's (2005) case study table

Table 6. Continued

Research questions	Data sources		Unit of analysis	Data analysis methods
5. How do the participants perceive the English idiom learning tasks, the use of text-based online chat for collaboration, and the effectiveness of IREs for English idiom learning?	Primary	Secondary	Individual responses	Survey ratings Open-coding
	Survey responses Interview transcripts	Reflective journals		

CHAPTER 4. RESULTS AND DISCUSSIONS

Chapter 4 presents and discusses the results regarding the operationalization of collaborative dialogue, or more specifically episodes of idiom focused dialogue (IFD) during SCMC-based dyadic interaction, its association with the participants' English idiom knowledge growth as well as their perspectives on online interaction with their partners. These three key areas were examined through 1) the patterns of SCMC-based dyadic interaction that the participants engaged in during their collaborative work on the meaning of the target idioms, 2) the communication strategies utilized by the participants for managing and maintaining their online collaborative interaction, 3) the scaffolded assistance that the participants provided to each other in deciphering the meaning, 4) the characteristics of collaborative interaction that dyads with high and low scores exhibited, and the connection of these characteristics to the learning of target idiom knowledge, along with 5) the participants' perspectives on the English idiom learning tasks, SCMC-based collaborative interaction, and the effectiveness of IFD episodes for the development of target idiom knowledge.

Both quantitative and qualitative data were analyzed to provide answers to each of these five areas of investigation. In particular, for the first three research questions, qualitative analysis was conducted on the basis of IFD excerpts from the chat transcripts generated by the eight dyads, their stimulated recall comments, and reflective journal entries. Quantitative analysis, on the other hand, was carried out in light of the frequency and percentages of IFD episodes, communication strategies, and scaffolded assistance across the four tasks. The fourth research question was examined using the immediate, short-term, and long-term delayed posttest scores, and

microgenetic analysis of the focal participants' growth in their comprehension and retention of the meaning of the target idioms. Answers to the last question lie in the participants' ratings of the post-task survey and their responses to the interview questions. The discussion of the findings for each of these research questions concludes with a summary of the results.

4.1. RQ1: Patterns of SCMC-Based Dyadic Interaction

The first research question concerned the patterns of interaction that the eight dyads adopted during text chat online exchanges. To answer this question, I analyzed the chat transcripts produced by the eight dyads, participant comments on their collaborative interaction, and their thoughts on the joint efforts documented in the reflective journals. For the chat transcripts, I focused on the two indexes that Storch (2002) identified as essential in distinguishing the different types of patterns, notably equality, "the level of contribution and control over the task" (Storch & Aldosari, 2013, p. 37), and mutuality, "the level of engagement with each other's contribution" (ibid). In addition to equality and mutuality, I also incorporated the discourse features of the IFD episodes into the analysis of patterns of dyadic interaction. Meanwhile, to facilitate the interpretation of chat data, the participants' stimulated recall comments and reflective journal entries were employed to offer additional insights and increase the validity of the findings. Special attention was paid to the participants' thoughts about their roles in the online collaboration, and their viewpoints on the contributions that they and their partners had made to the completion of the tasks.

Analysis of the level of equality and mutuality, discourse features of IFD episodes, stimulated recall comments, and reflective journal entries suggested the

Table 7. Patterns of interaction and average number of words, turns and time spent on the idioms-in-context and text-reconstruction tasks (N=8)

Idioms-in-context tasks (N=8)					Text-reconstruction tasks (N=8)				
Patterns of Interaction	No. of Dyads	Mean No. of Words (SD)	Mean No. of Turns (SD)	Mean Time Spent (in mins) (SD)	Patterns of Interaction	No. of Dyads	Mean No. of Words (SD)	Mean No. of Turns (SD)	Mean Time Spent (in mins) (SD)
Collaborative Orientation	4	621.13 (114.11)	67 (12.90)	35.88 (4.52)	Collaborative Orientation	6	623.5 (114.81)	57.33 (11.17)	30.5 (4.85)
Non-Collaborative Orientation	4	586.63 (128.01)	53.75 (17.31)	28.87 (3.91)	Non-Collaborative Orientation	2	461.25 (44.21)	46.75 (9.11)	30.5 (7)

*Note: SD = Standard Deviation

existence of both the collaborative and non-collaborative orientations. As shown in Table 7, during the completion of the idiom-in-context and text-reconstruction tasks, the dyads that adopted the collaborative orientations on average spent more time on the tasks, took more turns, and produced more words than those demonstrating the non-collaborative orientations. It is also important to note that in general the eight dyads, collaborating on the same types of tasks (for example, idioms-in-context tasks 1 and 2), engaged in quite similar patterns, while the patterns they exhibited during the completion of different types of tasks (for example, idioms-in-context task 1 and text-reconstruction task 1) varied considerably. In particular, there appeared to be a tendency among the dyads to move away from the non-collaborative orientation as their target idiom knowledge developed. It is noteworthy that for the text-reconstruction tasks, the collaborative dyads (6 out of 8) greatly outnumbered the non-collaborative dyads (2 out of 8). By contrast, for the idiom-in-context tasks, half of the dyads demonstrated the collaborative orientations, and the other half was non-collaborative in nature.

In addition to the overall orientations, it is also essential to examine the patterns of interaction in light of the roles that the participants assumed during their text chat online exchanges. Table 8 and Table 9 list the salient characteristics of the four patterns of dyadic interaction, notably collaborative, expert/novice, dominant/dominant, and dominant/passive that the eight dyads engaged in when working together on the idioms-in-context and text-reconstruction tasks. From it, several findings are of particular interest. First, similar to Storch's (2002) findings of the patterns of interaction in face-to-face communication, during the SCMC-based interaction in the current study, collaborative, rather than expert/novice, was the dominant pattern in terms of the collaborative

Table 8. Characteristics of the four patterns of interaction during the completion of the idioms-in-context tasks (N=8)

	A&E: C	B&F: C	C&G: D/D	D&H: D/P	I&M: C	J&N: D/D	K&O: D/P	L&P: C
Equality	High	High	High	Mid-Low	High	High	Low	High
Mutuality	High	High	Mid-Low	Mid-Low	High	Low	Low	High
Stimulated recall comments	Positive comments	Positive comments	Neutral comments	Negative comments	Positive/neutral comments	Negative comments	Negative comments	Positive comments
Reflective journal entries	Positive reflections	Positive reflections	Negative reflections	Neutral/Negative reflections	Positive/Neutral reflections	Negative reflections	Neutral reflections	Positive/Neutral reflections

**Note.* C = Collaborative; D/D = Dominant/Dominant; D/P = Dominant/Passive.

Table 9. Characteristics of the four patterns of interaction during the completion of the text-reconstruction tasks (N=8)

	A&E: C	B&F: E/N	C&G: D/P	D&H: C	I&M: C	J&N: E/N	K&O: D/P	L&P: C
Equality	High	Mid-High	Mid-Low	High	High	Mid-Low	Low	High
Mutuality	High	High	Mid-Low	Mid-High	High	Mid-High	Low	High
Stimulated recall comments	Positive comments	Positive comments	Negative comments	Positive comments	Positive/ Neutral comments	Positive/ Neutral comments	Negative comments	Positive comments
Reflective journal entries	Positive reflections	Positive reflections	Negative reflections	Neutral reflections	Positive/Neutral reflections	Positive reflections	Negative reflections	Positive/Neutral reflections

**Note.* C = Collaborative; E/N = Expert/Novice; D/D = Dominant/Dominant; D/P = Dominant/Passive.

orientations. It is clear from Table 8 and Table 9 that of the 10 pairs adopting the collaborative orientations, 8 were collaborative and 2 were expert/novice pairs, and these two expert/novice dyads only emerged during the completion of the text-reconstruction tasks. Furthermore, the trend to move away from the non-collaborative orientation can also be observed; that is, while the dominant/dominant pattern was found in the idioms-in-context tasks, no instance of its occurrence was identified in the text-reconstruction tasks. In addition, the two dyads (D & H and J & N) that adopted the non-collaborative pattern of interaction in the idioms-in-context tasks became collaborative in the task-reconstruction tasks.

In addition to the overview of the distribution of the patterns of SCMC-based dyadic interaction, a closer examination of the examples of the aforementioned four patterns provides a more comprehensive picture of how the participants interacted with each other while collaborating on the meaning of the target idioms. In the following sections, I will present the excerpts of the chat transcripts generated by the eight dyads that illustrate the collaborative, expert/novice, dominant/dominant, and dominant/passive patterns. In analyzing the equality and mutuality evidenced in these episodes of interaction, along with the stimulated recall comments and reflective journal entries, I will demonstrate how these patterns mediated the dyads' collaborative interaction and target idiom learning.

4.1.1. Collaborative pattern of dyadic interaction

As Storch (2002) described it, the collaborative pattern of interaction involves a high level of equality and a moderate to high level of mutuality. It is also characterized by the dyad members' collaboration on all parts of the task, willingness to offer and

engage with each other's contributions, provision and discussion of alternative views, and consensus on the resolutions. The interaction between the two participants, A and E, to a large extent illustrates the characteristics of a collaborative pair, for example,

Excerpt 1: Collaborative (A and E's idiom focused dialogue in idiom-in-context task 2)

1. E: Do you know what is the meaning of taken at face value?
2. A: I'm not sure
3. E: what do you think it means ?
4. E: based on the text, it seems like taken at face value relates to something about credibility
5. E: The army promise the elections but people don't believe this is going to happen
6. A: So it means can't be trusted?
7. E: I think so, but I'm not sure. What do you think?
8. A: I think that it may means people know someting or some people not very well because they just look the surface
9. A: for example, we analyze a person only for her appearance or one thing
10. A: but we don't really know the details of this person
11. E: I think our ideas are similar.
12. A: Yeah. We can say it means not just based on what a person says but based on what the person do
13. A: how do you like it?
14. E: I agree, but I think we should say trust a person just based on what this person says on the surface.
15. E: because the sentence is negative, Could never be taken at face value
16. A: yes, good observation!!
17. E: Alright! let's just write down the answer
18. A: ok. HAHA. You have smart ideas!
19. E: Yours is good too!
20. E: Are you ready for the next idiom?

Here the dialogue between A and E is typical of the interaction between a collaborative pair due to its manifestation of high levels of equality and mutuality. From the chat transcript above it was obvious that A and E contributed relatively equally to the meaning of “take someone or something at face value” by sharing their own thoughts and opinions on this idiom. They were also fully engaged in the exchange of ideas through requests (e.g., lines 3, 7, 13), negotiations (e.g., lines 6-10, 12-15), further explanations (e.g., lines 5, 9, 10, 15), as well as acknowledgement of each other’s contributions (e.g., lines 11, 16, 18). There were several instances of repetition for cohesion (e.g., E’s rephrasing of A’s explanation of the meaning of the idiom in line 14) and phatic utterances (e.g., lines 12, 16, 17 “Yeah”, “Yes”, and “Alright”) demonstrating agreements and confirmations. Most importantly, A and E reached consensus on the definition of the idiom they were discussing.

The high degree of equality and mutuality evidenced in the chat transcript were further corroborated by A’s comments on her collaboration with E in the stimulated recall interview, as she put it,

Excerpt 2: A’s stimulated recall comments

Researcher: How did you feel about working with E on the idiom “taken at face value”? What were you thinking during that time?

A: I think my collaboration with E went quite well. I sort of had a general idea of what “taken at face value” meant, but I did not want to be too bossy. I did not want my partner to feel like my answer was the only correct one. So I just waited until she explained everything to me and asked me, “What do you think”? This is the proper way to work with her, right? We are a team, and we need to respect each other’s opinions. To me this idiom was about paying excessive attention to people’s appearance, but her explanation of its meaning in terms of credibility also made sense to me. In my opinion, her combination of our answer in the end made our answers look better.

Additionally, E's response to the reflective journal question that elicited the explanation of how the dyads discussed the meaning of the target idioms and whether they felt the collaboration was useful for their understanding of the definitions supported A's positive feelings about their collaboration, as she described it,

Excerpt 3: E's reflective journal entry

During this discussion, we talked about these words meaning, most of them we do not know. However, we read sentences to analyze them and guess. Then, we told each other what we think and reasons. Most of time, we had the similar ideas. However, sometimes we have the different ideas. Then, we will read the sentence again and think of partner's ideas. This collaboration helps us to find our mistakes and remember these words easier because we can compare out knowledge of the meaning.

4.1.2. Expert/novice pattern of dyadic interaction

In contrast to the prevalence of the collaborative pattern, expert/novice pairs were found only in the completion of the text-reconstruction tasks. As Storch (2002) pointed out, this pattern is collaborative in nature and marked by "moderate to low equality but moderate to high mutuality" (p. 129). In other words, within the expert/novice pattern, although one dyad member (expert) takes more control of the tasks than the other (novice) due to his or her expertise in a given topic, there is a high level of engagement with each other's ideas since the expert actively encourages the novice to contribute to the discussions and participate in the collaborative interaction. In particular J and N's exchanges on the idiom *take the plunge* are demonstrative of the roles of *expert* and *novice*.

Excerpt 4: Expert/novice (J and N's idiom focused dialogue in text-reconstruction task 1)

1. J: for #7 take to task should be come into play?
2. N: hmm. how about take the plunge?
3. J: I don't know, why do you think so?
4. N: Because she says, "if you have not composed before"
5. N: take the plunge means do something you never tried b4
6. N: So it fits here
7. J: Oh, I don't see this, I 1st think piano goes with play but it doesn't work.
8. N: come into play is weird because it means important
9. N: This is my opinion, what is yours?
10. J: yeah, I agree
11. J: what is plunge by the way
12. N: it means diving into water.
13. N: You need courage to do that, right?
14. J: absolutely
15. N: And if you have courage, you can try new things.
16. J: This is a good point
17. N: Alright, let's use this answer and move to the next one

In the above excerpt, N seemed to assume more control over the tasks since most of the time he led the discussion about *take the plunge*. He apparently had better knowledge of the meaning of this idiom than J did. Nevertheless, instead of entirely ignoring J's opinions, he encouraged J to state his point of view (e.g., line 9) and aided in J's understanding of the meaning and use of *take the plunge* through his explanations (e.g., lines 4-6, 12-13). This is consistent with Storch's description of the expert role simply because in facilitating J's involvement with the task and the mutually acceptable solution to the L2 problem at hand, N was "authoritative without necessarily being authoritarian" (ibid, p. 135). J, on the other hand, appeared to be quite receptive to N's lead, as is

evidenced by his utterances indicating requests for further explanations (lines 3, 11) and confirmation (e.g., lines 10, 14).

The leading role of N in the aforementioned idiom focused dialogue can be further supported by his reflection of his interaction with J in the stimulated recall interview.

Excerpt 5: N's stimulated recall comments

Researcher: What was on your mind when you were discussing the seventh question with J?

N: I was pretty sure that the correct answer was *take the plunge*. So when J suggested the answer *come into play*, I was really curious why he thought so.

Researcher: Then why didn't you just use your own answer?

N: Because he was my partner and we needed to discuss the questions. Also he must have his reasons for his answer. My answer might not be correct as well, so it would be good for me to listen to what my partner said. Two heads are better than one, right?

Researcher: That is true. What did you think of J's answer after you chatted with him?

N: It seemed to me that he was not so familiar with the meaning of "take the plunge". Maybe he just randomly guessed the answer. But after I explained to him why *take the plunge* was more suitable here, I thought he was convinced.

Similarly, J noted in his stimulated recall how he had developed his knowledge about *take the plunge* from his chatting with M.

Excerpt 6: J's stimulated recall comments

Researcher: Did you find the discussion with N useful for understanding the definition of *take the plunge*?

J: Yes, it was very helpful. I did not know the meaning of *take the plunge* very well because I had trouble understanding the word *plunge*. For the reason that we were not allowed to look up this idiom in the online dictionary, I had to ask N for help. He obviously remembered the meaning of it better than I did, and he gave adequate

explanations of the reasons behind his choice. There was really no room for me to disagree with him because of his good knowledge about this idiom.

Additionally, reflective journals from J and N corroborated the positive role of the expert/novice pattern in maintaining collaboration and increasing target idiom learning. Particularly, N acknowledged the importance of sharing his expertise during the collaborative interaction to the completion of the tasks,

Excerpt 7: N's reflective journal entry

We first discussed the idioms, and if one of us knew the meaning, we were able to explain it to the other one. If none of us knew the meaning, we shared what we understand about the sentences and discussed together. I think working with my partner is efficient and easy to get the meaning of idioms. We can remember the meaning more quickly.

Likewise, J had a high regard for the assistance he had received from N, as he described it,

Excerpt 8: J's reflective journal entry

Through online chatting, my partner and I discussed the meaning of idioms. We described it to each other and we could understand our lackings. Some of the idioms were unknown to me and I did not know the correct usage of some in sentences. But after discussing it with my partners, I can understand and apply them successfully. Hence, I would say, I feel the collaboration was successful and useful.

4.1.3. Dominant/dominant pattern of dyadic interaction

Both dominant/dominant and dominant/passive patterns of dyadic interaction occurred in the IFD episodes. As Storch (2002) noted, they are the non-collaborative patterns that may negatively impact on peer-peer collaboration and L2 learning.

Specifically the dominant/dominant pattern is moderate to high on equality and moderate

to low on mutuality, and is characterized by the dyad members' unwillingness or inability to fully engage with each other's contribution, a high level of disagreement, and inability to reach consensus. Particularly C and G's IFD episode on the target idiom *put the heat on* can be viewed as indicative of the dominant/dominant pattern.

Excerpt 9: Dominant/Dominant (C and G's idiom focused dialogue in idioms-in-context task 2)

1. C: hmmm
2. C: put the heat on probably means?
3. C: any idea?
4. G: I have no idea
5. G: keep it out?
6. C: ??
7. C: how do u know?
8. G: just guess from the context
9. C: Oh...let me think for a second
10. G: ok
11. G: take your time
12. C: okay hold on
13. C: I think means under a lot of pressure
14. C: the sentence before says "he's facing a lot of pressure"
15. C: and conservatives are his own party, so...
16. G: I am not sure
17. G: but we are allow to have two different ideas, so you can submit yours, haha
18. C: For me, he is stopped close to the office
19. G: you can write what you think it means, not a problem
20. C: lol
21. G: we keep this and move to the next
22. C: ok, draw a line between...

The lack of agreements and inability to reach consensus that is typical of the dominant/dominant pattern is evident in the excerpt above. It is clear that although C and G both expressed their own opinions about the meaning of *put the heat on*, they did not seem to engage with each other's ideas, for C was attempting to convince G, who did not readily accept his suggestions. There were very few instances of requests (e.g., line 7) and provision of explanations (e.g., lines 14-15), and no instance of phatic utterances or repetition of each other's utterances. It is also true that both C and G's insistence on their own interpretations of *put the heat on* resulted in a failure to find a mutually acceptable solution through negotiated interaction. Despite their equal contributions to the completion of the task, the fact that C and G were not willing to incorporate their partner's perspectives, along with their lack of success in reaching agreements pointed to the low level of mutuality in their collaboration.

The comments made by C in response to this episode of interaction confirmed his dominant role in the online chatting.

Excerpt 10: C's Stimulated Recall

Researcher: Can you tell me your thoughts in your discussion of "put the heat on"?

C: I think this is very typical of our interaction: we did the same amount of work, but we did not communicate much. He seemed to be very confident about his ideas and persisted in imposing his answers. If his answers were reasonable, he could have at least given me his explanations. However, he did not tell me in detail how he figured out the meaning of the idioms. So I was thinking to myself, "I don't need to agree with you." I wanted to share my thoughts with him, but apparently he did not have much interest in knowing about them. Most of the time we simply used chat for showing and comparing our answers. There was not a lot of negotiation between us because we were not able to convince each other.

G also mentioned in his stimulated recall that due to his prior instruction on and familiarity with English idioms, he believed that he had a more accurate understanding of the meaning of the target idioms than C and thus insisted on leading the discussions. He admitted that there were not enough in-depth discussions between him and C, and he noticed C's reluctance to converge on his view. This resulted in his uncertainty about his authority over the tasks and loss of interest in collaborating with C, and his reflective journal revealed his feelings:

Excerpt 11: G's reflective journal entry

Our discussion about the meaning of idioms in online chatting was not as beneficial as we thought because I did not explain the meaning in the right way. I did not communicate with my partner very well because most of idioms we did not know it and we never hear about, so it was so hard to guess what does it mean and explain clearly. But we finally got it right because we exchange our opinion and we wrote the best answer.

In a nutshell, C and G's lack of involvement with each other's contributions, which was supported by the comments they had made in the stimulated recalls and reflective journals, supported the dominant roles that both of them assumed in their dyadic interaction.

4.1.4. Dominant/passive pattern of dyadic interaction

Another non-collaborative pattern of dyadic interaction found in the chat transcripts is the dominant/passive pattern. In this pattern of interaction, as Storch (2002) suggested, the level of equality and mutuality are both moderate to low. Furthermore, one dyad member takes an authoritarian stance by dominating and appropriating the tasks, whereas the other dyad member adopts a more passive, subservient role and makes very few contributions. Overall, there is little negotiation in the dominant/passive pattern. In

particular, K and O's discussion of the meaning of *think on one's feet*, *lose track of*, *put the heat on*, and *draw a line between* is a good example of such pattern.

Excerpt 12: Dominant/Passive (K and O's idiom focused dialogue in text-reconstruction task 2)

1. O: Think on one's feet
2. O: for the fourth one
3. O: do you agree?
4. K: yep
5. O: thx
6. K: welcome
7. O: lose track of
8. O: for the fifth
9. O: do you agree?
10. K: yes
11. O: someone says it is draw a line between
12. O: time & concentrate???
13. O: I don't think so
14. O: they are parallal
15. O: concentrate should go with a verb
16. K: I think your answer is correct, lose track of
17. O: great haha
18. K: the sixth is put the heat on
19. O: I think the sixth is Put the heat on
20. K: is that correct?
21. O: hahaha
22. O: yup
23. O: the seventh is draw a line between
24. K: if it is draw a line between, so there is two between next to each other
25. O: delete one of them
26. O: either one

27. K: ok

As was usual in the dyadic interaction between O and K, in the excerpt above O seemed to be the authority in resolving idiom-related problems: not only his utterances were relatively more frequent and longer than K's, he also drew on self-directed private speech (e.g., lines 11-15) to articulate his own thoughts. According to Storch (2002), the function of C's use of private speech is to regulate his own mental activities "when confronting difficulties of a cognitive nature" (p. 41) instead of involving K in contributing to the joint solutions. More importantly, during the process of interaction, O apparently took full control of the discussions and directed K towards the completion of the task. Although he made a few requests (e.g., lines 3, 9) for K's opinions, for the most part he did not actively encourage K to state her view on the erroneous usage of the target idioms. K, on the other hand, appeared to assume "a more passive, subservient role" (Storch, 2002, p. 129) by simply aligning herself with O through confirmations in several of her much shorter turns (e.g., lines 4, 10, 16, 22 "yep," "yes," "I think your answer is correct," "yup"). Although there were a few instances of turn-taking showing the occurrence of negotiation and debate (e.g., lines 23-24), most of the time there was only one-way flow of information from O to K. Because of the low levels of equality and mutuality in their dialogic exchange, O and K's collaboration can be viewed as the example of the dominant/passive pattern of interaction.

O's reflection on his interaction with K in his reflective journal to some extent confirmed his dominant role, as he noted,

Excerpt 13: O's reflective journal entry

To be perfectly honest, me and my partner didn't discuss a lot on the meaning of the idioms. Instead, we looked through the sentence provided separately and took a guess of it. Then we shared our answers to each other and see if we both agree to it. There were times that my partner was show, so I gave my answer first and mentioned the reason of why I think that. After my partner looked at my opinion, we quickly came up with a conclusion and decided which idioms will match perfectly. Most of the time she agreed with my opinions. Surely the collaboration really helps with understanding the meaning of the idioms.

In a similar vein, the passive stance that K took in the dyadic interaction was also evidenced in her stimulated recall comments,

Excerpt 14: K's stimulated recall comments

Researcher: Can you explain what you were thinking here?

K: I was discussing how to correct the idioms in questions four, five, and six with O.

Researcher: But I did not see a lot of your discussions.

K: Mmm, I did not remember the meaning of these three idioms very well at that time, and I think O's English is much better than mine, so I trusted his opinions. If our answers were similar, I felt more assured; if not, oftentimes I relied on his answers because he knew more about these idioms than I did.

4.1.5. Variations in the patterns of SCMC-based dyadic interaction

In addition to the examination of the overall patterns of interaction, a closer look at how the patterns of the same dyad differed in relation to their SCMC-based collaboration on the idioms-in-context and text-reconstruction tasks and the factors that may influence the variations allows for a more thorough understanding of the formation of pair dynamics. Table 10 and Table 11 present the patterns of interaction that each dyad displayed when grappling with the idioms-in-context and text-reconstruction tasks, along with the results of the eight pairs' online interaction, including the time spent on the tasks,

the number of words and turns produced, as well as the episodes of IFD that each dyad member initiated. From them, a few variations can be observed. Specifically, while the majority of the dyads who showed a collaborative pattern in the idioms-in-context tasks maintained the same relationship when they worked together on the text-reconstruction tasks (except for I and M who were at first collaborative became a expert/novice pair), those dyads that engaged in the non-collaborative pattern in the idioms-in-context tasks showed a greater variation in pair dynamics: particularly C and G, who were dominant/dominant in their completion of the idioms-in-context tasks, exhibited the dominant/passive pattern when carrying out the text-reconstruction tasks. In the case of D and H, in the face of the idioms-in-context tasks, they acted as a dominant/passive pair; however, they formed the collaborative pattern while completing the text-reconstruction tasks. The same applied to J and N, who showed the dominant/dominant pattern in the idioms-in-context tasks, assumed the roles of expert and novice when they interacted with each other for the joint solutions to the text-reconstruction tasks.

Despite being one of the collaborative orientations, compared with the collaborative pattern, expert/novice is viewed as the “asymmetrical relationships” (Storch & Aldosari, 2013, p. 46. The same is true for dominant/passive, as compared with dominant/dominant). This tendency to the asymmetrical relationships may stem from the fact that while deciphering the meaning of the target idioms together, neither of the members of the dyads had prior knowledge about the definitions, and therefore it was very unlikely that one member would take complete control of the tasks because he or she was more knowledgeable than the other one. However, in accomplishing the text-reconstruction tasks, the dyad members’ unequal levels of comprehending and retaining

Table 10. Characteristics of the eight dyads' SCMC-based interaction in the completion of the idioms-in-context tasks (N=8)

Dyads (Pattern of interaction)	Time on task (min)		Total number of words		Number of IFD episodes		Number of turns	
	IC task 1	IC task 2	IC task 1 (Total)	IC task 2 (Total)	IC task 2 (Total)	IC task 2 (Total)	IC task 1 (Total)	IC task 2 (Total)
A-E (Collaborative)	34	41	A: 355 (61.7%)	A: 375 (55.2%)	A initiated: 4	A initiated: 5	A: 32	A: 38
			E: 220 (38.2%)	E: 304 (44.8%)	E initiated: 3	E initiated: 3	E: 25	E: 26
			575	679	7	8	57	64
B-F (Collaborative)	30	36	B: 408 (61.8%)	B: 370 (53.9%)	B initiated: 3	B initiated: 4	B: 30	B: 33
			F: 252 (38.2%)	F: 316 (46.1%)	F initiated: 2	F initiated: 3	F: 24	F: 32
			660	686	5	7	54	65
C-G (Dominant/ Dominant)	25	35	C: 276 (37.4%)	C: 316 (45.4%)	C initiated: 4	C initiated: 5	C: 47	C: 36
			G: 461 (62.6%)	G: 380 (54.6%)	G initiated: 3	G initiated: 3	G: 30	G: 32
			737	696	7	8	77	68
D-H (Dominant/ Passive)	29	26	D: 238 (66.3%)	D: 297 (64.1%)	D initiated: 4	D initiated: 4	D: 12	D: 24
			H: 121 (33.7%)	H: 166 (35.9%)	H initiated: 1	H initiated: 2	H: 12	H: 18
			359	463	5	6	24	42

Table 10. Continued

Dyads (Pattern of interaction)	Time on task (min)		Total number of words		Number of IFD episodes		Number of turns	
	IC task 1	IC task 2	IC task 1 (Total)	IC task 2 (Total)	IC task 1 (Total)	IC task 2 (Total)	IC task 1 (Total)	IC task 2 (Total)
I-M (Collaborative)	38	32	I: 522 (63.1%)	I: 383 (68.6%)	I initiated: 3	I initiated: 5	I: 61	I: 56
			M: 305 (36.9%)	M: 175 (31.4%)	M initiated: 4	M initiated: 3	M: 28	M: 29
			827	558	7	8	89	85
J-N (Dominant/ Dominant)	28	31	J: 213 (40.6%)	J: 294 (48.4%)	J initiated: 4	J initiated: 4	J: 27	J: 25
			N: 312 (59.4%)	N: 313 (51.6%)	N initiated: 4	N initiated: 4	N: 29	N: 23
			525	607	8	8	56	48
K-O (Dominant/ Passive)	24	33	K: 474 (72.3%)	K: 427 (65.7%)	K initiated: 6	K initiated: 6	K: 29	K: 46
			O: 182 (27.7%)	O: 223 (34.3%)	O initiated: 2	O initiated: 2	O: 17	O: 23
			656	650	8	8	46	69
L-P (Collaborative)	33	43	L: 276 (57.3%)	L: 285 (56.7%)	L initiated: 2	L initiated: 3	L: 35	L: 38
			P: 205 (42.6%)	P: 218 (43.3%)	P initiated: 6	P initiated: 5	P: 27	P: 22
			481	503	8	8	62	60

*Note. IC task refers to the Idioms-in-context task

Table 11. Characteristics of the eight dyads' SCMC-based interaction in the completion of the text-reconstruction tasks (N=8)

Dyads (Pattern of interaction)	Time on task (min)		Total number of words		Number of IFD episodes		Number of turns	
	TR task 1	TR task 2	TR task 1 (Total)	TR task 2 (Total)	TR task 1 (Total)	TR task 2 (Total)	TR task 1 (Total)	TR task 2 (Total)
A-E (Collaborative)	29	35	A: 298 (58.1%)	A: 342 (60.6%)	A initiated: 5	A initiated: 4	A: 20	A: 25
			E: 215 (41.9%)	E: 222 (39.4%)	E initiated: 3	E initiated: 4	E: 16	E: 22
			513	564	8	8	36	47
B-F (Expert/ Novice)	26	28	B: 268 (47.1%)	B: 275 (51.9%)	B initiated: 2	B initiated: 3	A: 27	A: 30
			F: 301 (52.9%)	F: 255 (48.1%)	F initiated: 5	F initiated: 3	E: 24	E: 24
			569	530	7	6	51	54
C-G (Dominant/ Passive)	22	38	C: 273 (64.2%)	C: 350 (69.9%)	C initiated: 5	C initiated: 6	C: 20	C: 27
			G: 152 (35.8%)	G: 151 (30.1%)	G initiated: 2	G initiated: 2	G: 15	G: 22
			425	501	7	8	35	49
D-H (Collaborative)	28	34	D: 536 (72%)	D: 458 (65.9%)	D initiated: 5	D initiated: 5	D: 40	D: 45
			H: 208 (28%)	H: 237 (34.2%)	H initiated: 3	H initiated: 2	H: 19	H: 25
			744	695	8	7	59	70

Table 11. Continued

Dyads (Pattern of interaction)	Time on task (min)		Total number of words		Number of IFD episodes		Number of turns	
	TR task 1	TR task 2	TR task 1 (Total)	TR task 2 (Total)	TR task 1 (Total)	TR task 2 (Total)	TR task 1 (Total)	TR task 2 (Total)
I-M (Collaborative)	23	25	I: 216 (37.9%)	I: 266 (42.3%)	I initiated: 4	I initiated: 4	I: 33	I: 37
			M: 354 (62.1%)	M: 363 (57.7%)	M initiated: 4	M initiated: 4	M: 21	M: 23
			570	629	8	8	54	60
J-N (Expert/ Novice)	33	40	J: 439 (60.7%)	J: 536 (61.2%)	J initiated: 4	J initiated: 6	J: 37	J: 50
			N: 284 (39.2%)	N: 340 (38.8%)	N initiated: 4	N initiated: 2	N: 26	N: 30
			723	876	8	8	63	80
K-O (Dominant/ Passive)	28	34	K: 310 (73.6%)	K: 341 (68.4%)	K initiated: 6	K initiated: 4	K: 24	K: 32
			O: 111 (26.4%)	O: 157 (31.5%)	O initiated: 2	O initiated: 3	O: 22	O: 25
			421	498	8	7	46	57
L-P (Collaborative)	33	32	L: 255 (43.4%)	L: 230 (47.7%)	L initiated: 3	L initiated: 5	L: 34	L: 27
			P: 332 (56.6%)	P: 252 (52.3%)	P initiated: 3	P initiated: 3	P: 27	P: 26
			587	482	6	8	61	53

*Note. TR task refers to the text-reconstruction task.

of the meaning of the target idioms due to their previous exposure make possible one member's higher degree of contribution to and control over the tasks. The greater tasks demands of text-reconstruction tasks (for example, in the completion of idiom-in-context tasks, the participants only needed to focus on one idiom at a time, whereas in collaborating on the text-reconstruction tasks, they were required to attend to eight idioms simultaneously) may also led to the emergence of the roles of experts who directed the discussions and novices that were less competent and thus were encouraged to participate in the collaborative interaction.

The variation in the patterns of interaction that B engaged in to a large extent supports the above point. As shown in Table 10 and 11, in total she spent more time (12 minutes) on the tasks, generated more words (235) and turns (6), and initiated a higher percentage of IFD episodes (20%) when she exhibited the collaborative pattern in the idioms-in-context tasks than when she took on the passive role in the text-reconstruction tasks, and her comments on her interaction in the stimulated recall reflected her perception as to the change in her roles across the two types of English idioms learning tasks.

Excerpt 15: B's stimulated recall comments

Researcher: How did you feel about your collaboration with F in the idioms-in-context tasks?

B: It went great. Because neither of us knew anything about these idioms and we could only rely on the contexts for our guesses, I had a lot to say since I am good at guessing the meaning of new words. I felt it was much easier to read just one idiom on the computer screen, type in my thoughts, and send them to F. I really like the pace of our

collaboration because I can completely focus on the idioms.

Researcher: Okay. What about the text-reconstruction tasks?

B: To be honest, I did not find it very engaging. I am a terrible editor. I was not even able to recognize and correct my own mistakes in my essay. The idioms on top of every question were also somewhat daunting because I couldn't recall all of them. It took me a while to read the sentences and think about the meaning of the idioms until I noticed that F had sent me her ideas and waited for my reply. It was really difficult to keep up with my partner because there were so many things to attend to.

Interestingly enough, the discrepancies in the comprehension and retention of the meaning of the target idioms can also facilitate the development of more symmetrical relationships between the dyad members. A typical example is D, who assumed the dominant role while collaborating with H on the definition of the idiom *think on one's feet* in the completion of the idioms-in-context tasks,

Excerpt 16: Dominant/Passive (D and H's idiom focused dialogue in Idioms-in-Context task 2)

1. H: q4
2. D: I think 'think on one's feet' means that making decision soon. That is because children brainstorm and decide what they gonna do.
3. H: Q4 is it mean think on others position?
4. D: no
5. D: I think it means
6. D: make decision
7. D: according to the context it should mean this
8. H: i think so now

From the few turns above, D's dominance of the discussion is already quite apparent: not only did he have much more turns compared with H's and long monologue (e.g., lines 2) uncovered his dominant role (Storch 2002; Watanabe & Swain 2007; Watanabe 2008), he

also imposed his view (signaled by “no” in line 4) on H, regardless of H’s statement of his different opinion. This dominant/passive type of relationship evidenced in the excerpt above seems to be consistent with D’s production of a greater number of words and turns, and initiation of more IFD episodes during the idioms-in-context tasks, as is shown in Table 10. However, while working together with H to correct the erroneous usage of *think on one’s feet* during their collaboration on the text-reconstruction tasks, D functioned as an expert who actively invited H to share his thoughts and also offered his assistance to H through his explanations. Specifically,

Excerpt 17: Expert/Novice (D and H’s idiom focused dialogue in text-reconstruction task 2)

1. D: Q4 answer is think on one’s feet
2. D: cuz
3. D: i think she can come up with the right words
4. D: it means good at making decision
6. D: how do u think?
7. H: yea
8. H: i think it says very thought-provoking...
9. D: so?
10. H: take at face value??
11. D: but I think
12. D: two sentences after says “it takes me a while”
13. D: people cant make quick decision like her so this idiom makes sense in this sentence.
14. H: idk exactly but i think this is the only answer that I m thinking about
15. D: think so,tells she think on ones feet

Echoing D’s outnumbering H in the total number of words and turns generated, as well as IFD episodes initiated during the text-reconstruction tasks (see Table 11), here the

interaction between D and H was moderate to low on equality since D was seemingly directing the flow of discussion most of the time. Nevertheless, unlike the aforementioned excerpt in which D imposed his view on H, in many places of the excerpt D attempted to involve H in the collaborative interaction (e.g., lines 6, 9) and assist H in seeking the correct answer by offering useful contextual cues (e.g., lines 3-4, 12). As a result, the level of mutuality in D and H's collaboration here was moderate to high, and D's comments in his stimulated recall suggested that such a variation in the patterns of interaction could be attributed to the disproportionate increase in his and his partner's knowledge about the target idioms, as he put it,

Excerpt 18: D's stimulated recall comments

Researcher: Can you tell me your thoughts about your collaboration with H on the idioms-in-context and text-reconstruction tasks?

D: I insisted on my own opinions a little harder in the idioms-in-context tasks because I think I was better than H at guessing the meaning of these idioms correctly. He was kind of slow and did not seem to fully understand the sentences, so I did not pay much attention to what he said because it was not that helpful. After all, you told us there could be multiple answers to one idiom, so why spending my time knowing about his ideas? But the text-reconstruction tasks were different because there was only one correct answer for each question, I had to discuss with him to ensure the correctness of our answers. He might notice things that I was not aware of, and he could have a more accurate understanding of the idioms since it was too much for me to memorize and apply eight idioms in just two classes. I needed a second opinion to accomplish the tasks.

D and H's increased tendency toward the collaborative orientations, to some extent, echoed the findings of previous studies showing the effects of dyad composition on pair dynamics in face-to-face communication. Particularly, Storch (2001) and Dobao (2012), examining the impact of the differences in English language proficiency, found that the

more heterogeneous dyads in their studies, notably the pairs with larger proficiency differences (for example, advanced-low) were more likely to engage in the collaborative patterns than the dyads of higher levels of homogeneity; that is, the pairs with smaller variations in L2 proficiency (for example, intermediate-low). Storch (2001) also found that the more homogeneous dyads in her study were less advantageous in terms of the internalization of co-constructed L2 knowledge. In the case of the current study, it seems that the high degree of heterogeneity in the participants' knowledge about the target idioms may be closely associated with the patterns of interaction they engaged in and the roles they assumed in the dyadic interaction. Nevertheless, both B and D acknowledged the benefits of different patterns for mediating their collaboration with their partners and English idiom learning in their stimulated recalls. The reflective journal from K, who did not demonstrate variation in her patterns of interaction across the two types of tasks, also reflected the benefits of the passive role she took on during her collaboration with O for her idiom learning, as she noted,

Excerpt 19: K's reflective journal entry

My partner, O, and I started by reading the example sentences given with the idioms. Then, we would guess the meaning based on the context and checked whether if the meaning fits or make sense when placed in the example sentence. If we both think the meaning we guess can act as a substitution to the idiom, we will assume that is the meaning to the idiom. We also corrected the idioms through our discussion of why they are incorrect and which idiom is the best fit. I think the collaboration is quite useful for my understanding of the meaning of the idioms because I can remember it better since I had discussed and used them a couple times in real life.

4.1.6. Section summary

Research question one seeks to understand the patterns of interaction that the eight dyads showed while engaged in SCMC-based collaborative interaction during the completion of the idioms-in-context and text-reconstruction tasks. On the basis of Storch's (2002) description of the characteristics of pair dynamics, especially the level of equality and mutuality, results from the analysis of chat transcripts, stimulated recall comments, and reflective journal entries suggested that while working collaboratively to decode the meaning of the sixteen target idioms, the participants were involved in the four distinct patterns of interaction previously only documented in face-to-face communication: collaborative, expert/novice, dominant/dominant, and dominant/passive. Particularly, the dyads demonstrating the collaborative pattern were high on equality and moderate and high on mutuality since each dyad member contributed relatively equally to the solutions to the tasks, attended to each other's different opinions, and reached consensus on the meaning of most of the target idioms. Expert/novice pairs, on the other hand, were moderate to low on equality and moderate to high on mutuality. In the case of the current study, the expert/novice pattern only emerged in the completion of the text-reconstruction tasks, where one dyad member led the discussions, actively involved the other member in the collaborative interaction, and offered assistance in deciphering the definitions of the target idioms.

Compared with the expert/novice pattern, the level of equality and mutuality in dominant/passive were both moderate to low since one dyad member appropriated the tasks by imposing his or her interpretations of the meaning of the target idioms on the other participant, who did not frequently voice their thoughts and ideas. The

dominant/dominant pattern, by contrast, was characterized by a moderate to high level of equality and moderate to low level of mutuality. In adopting this pattern, the two members of the dyad insisted on their own inferences about the definitions of the target idioms, and very few agreements were reached because of the inadequacy of involvement with each other's contributions. Similar to the expert/novice pattern, dominant/dominant was found only in the idioms-in-context tasks.

In addition to the presence of these four patterns of interaction, it is important to point out that the dyads in this study tended to move away from the non-collaborative pattern across the four tasks, which seemed to be closely tied to the increased heterogeneity in their knowledge about the meaning of the target idioms. The particular patterns that a dyad member had exhibited also appeared to be influenced by his or her perception of his or her role in the collaboration and his or her partner's contributions to successful task completion. On top of these intriguing findings, the prevalence of the collaborative orientations, including the patterns of collaborative and expert/novice, to a large extent supported the benefits of SCMC-based interaction for facilitating peer-peer collaboration and mediating target idiom learning.

4.2. RQ2: The Utilization of Communication Strategies during IFD Episodes

The second research question centered on the communication strategies that the eight dyads utilized during IFD episodes for the management and maintenance of their collaborative interaction in SCMC. This question concerned the communicative function of SCMC-based collaborative dialogue and explored the ways in which ESL learners jointly created the online discourse necessary to undertake the English idiom learning tasks. To more effectively analyze the instances of communication strategies, I coded the

chat transcripts from the eight dyads into the five categories proposed by Peterson (2009), namely, 1) requests for and provision of assistance, 2) continuers and co-constructions, 3) off-task discussion, 4) self- and other-initiated correction, as well as 5) strategies used in combination. Peterson's categories derived from learner-learner interaction in a task-based SCMC environment and therefore served as a good basis for the identification of communication strategies in the current study. In addition to the analysis of chat transcripts, I also incorporated stimulated recall comments and reflective journal entries that manifested the participants' thoughts when they drew on communication strategies to interact collaboratively with their peers. In complementing discourse analysis with introspective data, more insights into the uses and purposes of the communication strategies were revealed.

Data from the chat transcripts, stimulated recalls and reflective journals made it clear that in working together on the meaning of the target idioms, the dyads adopted all of the five categories of communication strategies mentioned above to manage and maintain their synchronous, collaborative interaction. Furthermore, the frequency of utilization of these strategies in each task (see Figure 9) showed that while the dyads employed off-task discussion, self- and other-initiated correction, and strategies used in combination quite consistently during the completion of the idioms-in-context and text-reconstruction tasks, they used continuers and co-constructions more often for the idioms-in-context tasks (52 instances in idioms-in-context task 1 and 61 in idioms-in-context task 2) than for the text-reconstruction tasks (36 instances in text-reconstruction task 1 and 30 in text-reconstruction task 2). The same is true for requests for and provision of assistance (21 instances in idioms-in-context task 1 and 25 in idioms-in-

context task 2, versus 10 instances in text-reconstruction task 1 and 9 in text-reconstruction task 2). Additionally, as Figure 9 clearly demonstrated, for the idioms-in-context and text-reconstruction tasks alike, the participants made use of far more continuers and co-constructions than the rest of the strategies for carrying out their conversational exchanges in online chat rooms. This predominant use of continuers and co-constructions was also reflected in Table 12, which detailed the frequency of each dyad's utilization of communication strategies throughout the four tasks. It became obvious that of the five categories of communication strategies, continuers and co-constructions were the most common (58.9%), followed by requests for and provision of assistance (21.4%). The less frequent were instances of off-task discussion, self- and other-initiated correction, and strategies used in combination, each representing 7.6%, 6.6%, and 5.6% of the total occurrences.

Categories of communication strategies

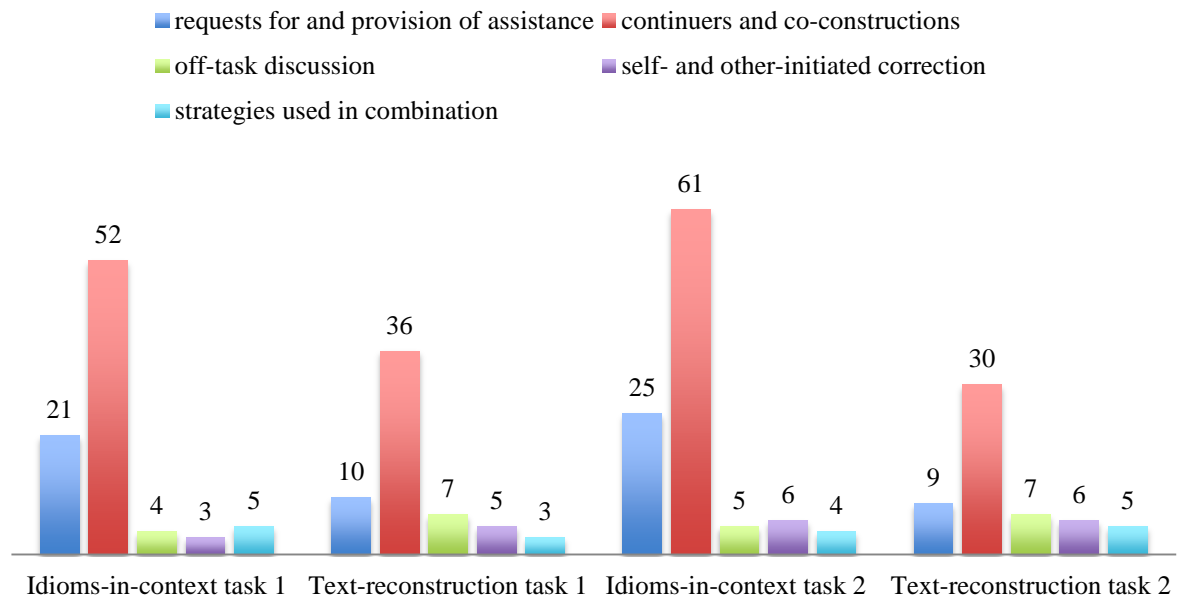


Figure 9. Frequency of use of communication strategies in each task (N=8)

Table 12. Frequency and percentage of utilization of communication strategies in all four tasks (N=8)

Dyad	Categories of communication strategies					
	Requests for & provision of assistance	Continuers & co-constructions	Off-task discussion	Self- & other- initiated correction	Strategies used in combination	Total frequency count
A-E	6 (14.6%)	26 (63.4%)	4 (9.8%)	3 (7.3%)	2 (4.9%)	41 (100%)
B-F	12 (25%)	22 (45.8%)	5 (10.4%)	6 (12.5%)	3 (6.3%)	48 (100%)
C-G	9 (28.1%)	15 (46.9%)	3 (9.4%)	3 (9.4%)	2 (6.3%)	32 (100%)
D-H	7 (24.1%)	20 (69%)	1 (3.4%)	0 (0%)	1 (3.4%)	29 (100%)
I-M	2 (4.8%)	32 (76.2%)	2 (4.8%)	4 (9.5%)	2 (4.8%)	42 (100%)
J-N	5 (14.3%)	18 (51.4%)	6 (17.1%)	3 (8.6%)	3 (8.6%)	35 (100%)
K-O	8 (34.8%)	12 (52.2%)	2 (8.7%)	1 (4.3%)	0 (0%)	23 (100%)
L-P	16 (29.6%)	34 (63%)	0 (0%)	0 (0%)	4 (7.4%)	54 (100%)
Total	65 (21.4%)	179 (58.9%)	23 (7.6%)	20 (6.6%)	17 (5.6%)	304 (100%)

In addition to the quantitative description above, a qualitative investigation of the communication strategies can give a more accurate and richer picture of the nature of use. To achieve this goal, next I will provide a more in-depth account of each strategy on the basis of illustrative episodes of IFD from the eight dyads' chat transcripts (with **bold** denoting key examples), along with analysis of how it aided in deciphering the meaning of the target idioms. Meanwhile, stimulated recall comments and reflective journal entries that are relevant to the communication strategies under discussion were also cited to better understand their emergence. An interesting fact that stood out, based on these multiple sources of data, was that the utilization of communication strategies, on top of its effectiveness in facilitating peer-peer interaction in SCMC, contributed substantially to the participants' L2 socialization. I will elaborate further on this point in the following section.

4.2.1. Continuers and co-constructions

As noted earlier, continuers and co-constructions constituted the bulk of the communication strategies that the participants capitalized on to promote SCMC-based collaborative dialogue with their partners. According to Foster and Ohta (2005), co-constructions are the interactional moves in which “one person completes what another has begun” (p. 420), and it allows L2 learners to “participate in forming utterances that they cannot complete individually, building language skills in the process” (ibid). Peterson (2009) added that co-constructions are often materialized through continuers, the utterances that “signal interest, encouragement and support expansion of the interaction” (p. 311). A glimpse of the chat transcripts revealed the high rate (148 of the 179 total instances or 82.7%) of co-existence of continuers and co-constructions that

served as a means of collaborating on the development of acceptable definitions of the target idioms. A typical example can be found in L and P's discussion of *part and parcel of*:

Excerpt 20: Continuers and co-constructions (L and P's idiom focused dialogue in idiom-in-context task 1)

1. L: So do you have any idea of what part and parcel of means?
2. P: How about the meaning of Part and parcel of?
3. P: haha
4. L: **I think it means it will happens**
5. L: **I think it means something will happen unequivocally, such as physical collisions are unavoidable in sports**
6. L: **Does that make sense?**
7. P: yes
8. P: **From my perspective, it means it is a part of something and it is very significant**
9. L: **Alright, so we could write it probaly means it is part of something that is unavoidable?**
10. P: **yeah, and maybe change the 'unavoidable' to 'could not be lacked' is better?**
11. L: **Sounds good 2 me!**
12. L: are you ready for the next idiom?
13. P: yes

The above interaction provided a window into how L and P, who apparently held different interpretations of the target idiom, decode the meaning of *part and parcel of* by virtue of co-constructions and continuers. In lines 4 and 5, it was possible that L viewed *part and parcel of* as a holistic chunk since she relied mainly on the context in which it occurred for her guess. She sent P a request for confirmation with a continuer (in the form of a question in line 6) and expanded the interaction, for P, concurring L's idea (in

line 7), continued with a statement of her opinion. He appeared to focus more on the meaning of the constituent parts of *part and parcel of* (evidenced by her emphasis of “a part of something” in line 8), prompting L to incorporate his suggestion through another continuer (also another confirmation request in line 9). There were also two continuers that followed: one was articulated by P in line 10 that offered feedback on the appropriate use of vocabulary, and the other from L in line 11 expressed his support for P’s viewpoint. Through the employment of these multiple continuers, A and E co-constructed the answer that seemed proper and correct to both of them.

The importance of the utilization of co-constructions and continuers to learner interaction and task completion can also be seen in the accomplishment of the text-reconstruction tasks. Excerpt 21, for example, illustrates the process whereby the dyad successfully identified and corrected the erroneous usage of “think on one’s feet” by resorting to this strategy,

Excerpt 21: Continuers and co-constructions (B and F’s idiom focused dialogue in text-reconstruction task 1)

1. B: **i think the fourth question is think on one’s feet. What about you?**
2. F: I am not sure
3. F: wait...
4. F: **replace run of the mill?**
5. B: as in the previous sentence it writes, “its amazing how she canalways come up with the right words”
6. F: It means agree with somebody
7. B: and it also says it takes me awhile
8. B: **i think think on one’s feet is the best because what she says is right and quick. Do u agree with me?**
9. F: **Yeah, u r right. I am not sure cause I don’t remember the means of this word**
10. B: **Run of the mill? It means not special.**

11. F: **Alright. Do you think we need to change one's to their, their feet?**

12. B: **let's do this!**

Once again, in this segment of interaction, the deployment of multiple continuers contributed positively to the solution of the English idiom problem that B and F were grappling with. In line 1, it is apparent that B initiated his interaction with F by suggesting the answer and encouraged F's involvement through the use of a continuer. This extended the discussion since the continuer was met with an immediate response from F, who typed in two lines of text indicating her uncertainty (lines 2 & 3) and a continuer that called for B's further elaboration (in line 4). Similarly, after several lines of explanation, B made use of another continuer (in line 8) to draw F's attention and check her understanding. Responding to B, F signaled her agreement in her second continuer (*Yeah, u r right* in line 9) and moved the discussion forward by clarifying the issue she had encountered in solving the idiom problem. Upon receiving the response from B (in line 10), she also contributed her idea in a timely fashion through a third continuer (in the form of a confirmation request in line 11), which was soon accepted by B.

In reflecting on this episode of interaction, F made the point that the utilization of co-constructions and continuers for the discussion of the target idioms not only enhanced the interaction between B and her, but also helped to increase opportunities for her socialization with B into the academic discourse, as she put it,

Excerpt 22: F's stimulated recall comments

Researcher: What do you think about your collaboration with F in here?

F: It went pretty smoothly. Although my partner knew the meaning of this idiom better than I did, he did not disregard my opinions; rather, he worked closely with me to come up with the answer. I got the sense that he really cared about what I was thinking and good communication with him was essential to our success. During our chat, we kept

each other informed by sending instant messages back and forth. This ensured that we were always on the same page.

Researcher: Thanks for your insightful comments. Do you have anything else to add?

F: I think I practiced my communication skills while interacting with B during online chat exchanges. I have learned the most frequently used English idioms before in my home country, but there was no interaction involved. The teacher simply explained the definitions of the idioms and asked us to memorize them. For the idiom learning tasks, however, I needed to do much more: figuring out the meaning independently, and discussing and debating them with my partner. I felt B was more experienced with the idioms because he was able to explain them in a way that was more...more academic. He definitely had a lot of great ideas, but to know about his ideas, I had to use English to ask for them. To me, that was quite challenging too. Luckily, we have built a good relationship during our discussion. We respected and incorporated each other's viewpoints. It was overwhelming at first, but as our interaction continued, I became more and more confident of elaborating on my thoughts and conscious of my choice of language.

The above statement made by F regarding the usefulness of utilization of co-constructions and continuers for learner-learner interaction and L2 socialization seemed to be further confirmed by B in his reflective journal, which acknowledged the benefits of socializing with F through the use of L2,

Excerpt 23: B's reflective journal entry

In my opinion, the conversation I had with my partner was very helpful for me to understand new vocabulary and idioms. While doing this activity, I shared the idioms that I knew with her and she did the same. We both had our own strengths: I was good at the meaning and she had excellent knowledge of grammar. When we were not sure about idioms such as 'run of the mill', we listened to each other's points of view and combined our answers. This collaboration was a good idea on my part because I improved my

communication with someone. I am glad I can use “nouns”, “verbs”, and “plural” to talk about my ideas more freely.

4.2.2. Requests for and provision of assistance

A second communication strategy that emerged from the analysis of the chat transcripts is the utilization of requests for and provision of assistance. Peterson (2009) found that the majority of the instances of requests for and provision of assistance in his study were associated with 1) task completion, 2) the content or conduct of the tasks, and 3) teacher-like feedback. Excerpts of IFD in the current study illustrating requests for and provision of assistance to a large extent support this finding, and it is noteworthy that the majority (56 of the 65 total instances or 86.15%) of the requests for assistance in task completion and the content or conduct of the tasks were followed by immediate, appropriate feedback. Particularly Excerpt 24 can be viewed as a good example of this strategy,

Excerpt 24: Requests for and provision of assistance (C and G’s idiom focused dialogue in text-reconstruction task 1)

1. C: the last one is go off tangent
2. G: again?
3. G: **how many idioms can we put in one question?**
4. C: **it looks like a match problem, one question one answer**
5. G: okay
6. G: i thought we used go off on a tangent on the first question
7. G: nevermind I may be wrong
8. C: oh. let me check
9. C: take at face value the first one because it is on the surface that students were not interested in the meetings that are not relevant.
10. G: ok

11. G: let's change our answer for question one
12. C: **Do we also need to write down why we think the idioms are not correct?**
13. G: **I think it is not necessary, just change the mistakes will be fine**
14. G: **And don't forget to save all your answers**
15. C: ok, done

The above excerpt demonstrated how the two members of the dyad requested and provided assistance around the conduct of the tasks. At the outset of this discussion, G seemed to be confused by C's answer and therefore requested information about the requirement of the tasks (line 3). Having received the assistance similar to a teacher-like response from C (line 4), G quickly realized his error and made the correction accordingly. In a similar vein, in responding to the request from C for the specifics of the task (line 12), G offered detailed explanations that were close to teacher guidance on task completion (lines 13 & 14). This provision of assistance elicited a favorable response from C in the following line indicating her understanding and cooperation.

In addition to the conduct of the tasks, technical issues were another area in which requests for and provision of assistance occurred. Particularly K and O's IFD episode surrounding the idiom *draw a line between* reflects the utilization of this strategy for the solution to the technical difficulties that O had encountered during his collaboration with K,

Excerpt 25: Requests for and provision of assistance (K and O's idiom focused dialogue in idiom-in-context task 1)

1. K: draw a line between?
2. O: yes
3. K: do you think it means showing the clear distinction between two things?
4. K: since the sentence says "serious music" and "popular music", these two are very

different

5. O: so draw a line between means make the clear distinction?
6. K: I also think so
7. K: I think that go off on a tangent is off the topic
8. O: **do you go to next one? How you do it?**
9. K: **just click the “Next” button**
10. O: **Where? I did not see it**
11. K: **It is under the box, on the left side**
12. O: **ok, I find it.**
13. K: **what about the next one?**
14. O: **go off on a tangent?**
15. K: U got it!
16. O: ☺

Here after a few lines of dialogue on the meaning of *draw a line between*, O requested K to assist him in gaining access to the next question (in line 8) and received a series of responses from K (in lines 9 & 11) that contained specific instruction on the technical aspect of the task. In line 12, O’s utterance indicated his success in resolving the issue through the reception of K’s assistance, which was further corroborated by her articulation of the correct idiom in line 14.

Aside from the above explicit request for assistance, implicit requests also occasionally appeared in the dyads’ interactional processes, for instance,

Excerpt 26: Requests for and provision of assistance (D and H’s idiom focused dialogue in idiom-in-context task 1)

1. D: what should we talk about
2. H: idioms
3. H: do you know any?
4. D: we should talk about the meaning about “Take at face value”
5. D: Let’s start!

6. H: okay, the 1st one

7. H: **Hmm, this is hard**

(1-minute interval)

8. D: **Did you use the sentence to guess what is the meaning of “Take at face value”?**

9. H: oh, we do not use Google?

10. D: no, we only guess the meaning

11. H: lol...

12. H: **it is like take things as they appear because the army promise the election
but no one believes it.**

13. D: great...

In this segment, D was waiting for H's response to the meaning of the idiom *take at face value* (lines 4 through 5). However, after one minute had elapsed from the time H sent out his last message (in line 7) indicating implicitly the difficulty he encountered, D recognized that H might need her assistance and offered a tentative suggestion for the content of their discussions (in line 8). This reestablished her connection with H and resulted in H's appropriate response to her assistance in line 12.

4.2.3. Off-task discussion and self- & other-initiated correction

In contrast with the abundance of co-constructions and continuers and requests for and provision of assistance, instances of off-task discussion and self- and other-initiated correction were relatively few and sparse. Nevertheless, they played an equally important role in encouraging the participants' real-time, collaborative interaction and L2 socialization. In particular, the following excerpt of I and M's IFD revolving around the idiom *rule of thumb* represents a typical example of off-task discussion,

Excerpt 27: Off-task discussion (I and M's idiom focused dialogue in idiom-in-context task 2)

1. I: So I think that the rule of thumb probably means advice or theory

2. I: how about you?
3. M: I guess maybe the rules we can know from process of ipad development history
4. I: the “rule of thumb” doesn’t necessary mean rules
5. I: though
6. M: ok, I think may be you are right
7. I: lol
8. M: because it may means suggestions or advices
9. I: so lets say it means advice
10. M: **i bring my ipad to school everyday**
11. M: **it saves me a lot of time and work.**
12. I: **Yeah, I have one too! :)**
13. I: **thepower of technology.**
14. M: **agreed.**

At the very end of the above interaction (lines 10 through 14), I and M diverged from their discussion of the meaning of *rule of thumb* by sharing their personal experience with the use of iPad. This off-task discussion seemed to stem from and extend the content of their on-task discussion (lines 1 through 9), and also reflected their engagement with the English idiom learning tasks.

In contrast, several instances of off-task discussion appeared to be entirely irrelevant to the idioms that the participants were focusing on, for example,

Excerpt 28: Off-task discussion (J and N’s idiom focused dialogue in text-reconstruction task 1)

1. J: the second answer is part and parcel because it means a necessary part
2. N: what about the first one
3. N: i couldn’t figure it out
4. J: I’ll figure it out later when i finish the othrs
5. N: **btw have you done the movie review**
6. J: **yup almost**

7. J: **guess what we got two websites we can choose either one**
8. N: **awesome**
9. N: **do you listen to any englis music?**
10. N: ***english**
11. N: **wait we have an idiom quiz to complete**
12. J: **yup let's do the quiz first**
13. N: taken at face value for the 1st one?

In this segment, after a few exchanges of ideas concerning the text-reconstruction task, N initiated a discussion of the course assignments that he and J were required to complete (lines 5 through 8) and personal interests and hobbies (lines 9 & 10). Although the discussion of these irrelevant topics drove the interaction forward, it contributed little to the completion of the task at hand. Having noticed the possible negative effects of wandering from the discussion about the meaning, N promptly reminded J of the task they needed to accomplish (line 11) and diverted the off-task discussion. In line 13, N's input signaled his focus on task completion.

On top of off-task discussion, the use of self- and other-initiated correction for the facilitation of collaborative interaction is another prominent feature of the utilization of communication strategies, and a close examination of the chat transcripts suggested its main focus on grammar errors, for example,

Excerpt 29: Self-initiated correction (C and G's idiom focused dialogue in text-reconstruction task 2)

1. C: Are you finished yet?
2. G: my answer is "take the plunge" and "shift gears".
3. G: my answers are "take the plunge" and "shift gears".
4. C: I see.

Here G changed the incorrect singular noun *answer* to the correct plural noun *answers* and the incorrect singular verb *is* to the correct plural verb *are* for subject-verb agreement. Since this was accomplished without his partner C's prompting, it demonstrated G's effort to improve the accuracy of his message to ensure the quality of the interaction between C and him. On the other hand, A's correction of E's improper use of word form illustrates how the error-correction was achieved through peer prompting,

Excerpt 30: Other-initiated correction (A and E's idiom focused dialogue in idiom-in-context task 2)

1. E: So take the plunge
2. A: be brave?
3. A: be courageous?
4. E: I think may means attend the tasks or may take the responsible
5. A: **you mean responsibility?**
6. E: **Oh, yeah, take the responsibility**
7. E: and to believe themselves

The utilization of off-task discussion and self- and other-initiated correction, although somewhat infrequent, played a positive role in the participants' L2 socialization since it "contributed to the creation of a low-stress atmosphere that enabled the subjects to establish and maintain collaborative interpersonal relationships that supported the production of coherent TL discourse" (Peterson, 2009, p. 324). One of the participants, G's reflective journal largely support this point,

Excerpt 31: G's reflective journal entry

In online chat, it is very challenging to explain the meaning and usage of the idiom to others if you don't understand it yourself. It is also very easy to get distracted and embarrassing to see the mistakes you made in your message. So, if I could make my partner understand the meaning, I could learn the idiom by heart. Explaining it to my

partner was the most demanding part, but I enjoyed it because we formed good relationship and learned from each other.

4.2.4. Strategies used in combination

On a few occasions, the dyads utilized more than one strategy for the solution to the English idiom problem they were faced with, for example,

Excerpt 32: Strategies used in combination (A and E's idiom focused dialogue in idiom-in-context task 2)

1. A: next one
2. E: Take somebody to task means You and your partner's reasons for the meaning of
Take somebody to task
3. E: wow, this one gives me a headache
4. A: haha, I know!
5. A: So take somebody to task
6. E: **from my perspective, it means help somebody to do the task?**
7. E: **or ask somebody to do some tasks?**
8. A: but if you place the meaning into the sentence, it seems a little weird
9. A: **do you think it would mean think really hard**
10. A: **or take it seriously?**
11. A: **do you agree?**
12. A: **do you think it is difficult to communicate?**
13. E: yeah, maybe it means they have different ideas and someone did somebody did
something wrong
14. E: e...ignore something wrong
15. A: alright, we can say it means different ideas
16. E: not sure because I can not see it clear
17. E: **do you know what is the meaning of bail out?**
18. A: **idk, maybe use something for excuses because bail means release from jail
with money, right?**
19. E: yeah, so it means teach people a lesson?
20. A: I have some idea

21. A: **it probably means people have different ideas and somebody did something wrong, others want to prove it and teach the person**
22. A: **improve it, my apology**
23. E: **agreed, what about the reason?**
24. E: **it sounds right when placing the meaning we guessed into the sentence. :)**
25. A: is that enough?
26. E: I think so
27. A: oK

The above excerpt illustrated how A and E came up with an agreed definition of *take somebody to task* through the exploitation of various communication strategies. In lines 6 through 7 and 9 through 12, A and E took turns confirming the accuracy of and obtaining feedback on their answers by resorting to a series of continuers. This resulted in the incorporation of each other's suggestions and the subsequent co-construction of the meaning of the target idioms (lines 21 & 24). In addition, in line 17, E requested assistance from A for the content of the task (specifically an unfamiliar word in the COCA excerpt), which allowed for A's rapid and appropriate response (line 18) that led to E's further discussion (line 19). Finally, noticing the lexical error in his message, A adopted self-initiated correction to monitor his utterances in order to ensure mutual understanding. Overall, the strategies used in combination, as evidenced in the above excerpt, increased the dyad members' participation in the synchronous online exchanges and the effectiveness of their collaborative interaction for successful task completion. This aligned with A and E's stimulated recall comments on the above excerpt that strongly endorsed the use of multiple strategies. In particular, A remarked, "I think my discussion with E over the meaning of *take somebody to task* was quite productive because we shared our thoughts and got the answer we both felt satisfied."

4.2.5. Section summary

For the second research question examining the utilization of communication strategies for the management and maintenance of SCMC-based collaborative interaction, analysis of the chat transcripts, stimulated recall comments, and reflective journal entries suggested the existence of five categories of communication strategies: 1) requests for and provision of assistance, 2) continuers and co-constructions, 3) off-task discussion, 4) self- and other-initiated correction, as well as 5) strategies used in combination. Among these five categories, continuers and co-constructions constituted the vast majority of the communication strategies employed by the participants for coming up with the definitions of the target idioms that were acceptable to both parties and arriving at agreed solutions to their improper use in new contexts. The second most widely used strategy was requests for and provision of assistance, through which the participants offered and received suggestions regarding task completion, the content or conduct of the online exchanges, and technical issues. Off-task discussion, self- and other-initiated correction, and strategies used in combination occurred relatively less frequently, and they were used for building rapport, ensuring mutual understanding, encouraging participation, and facilitating a smoother interaction between dyad members. In utilizing these five categories of communication strategies, the participants were able to orchestrate the flow of their online discussions and more effectively engage in the practice of being socialized into the academic discourse.

4.3. RQ3: Provision of Scaffolded Assistance during IFD Episodes

The third research question investigated the scaffolded assistance that the participants provided to each other in jointly performing the English idiom learning tasks within a SCMC environment. It was closely associated with the L2 learning function of collaborative dialogue and examined in detail how the participants processed and deciphered the meaning of the target idioms. It also sought to understand how SCMC-based scaffolded assistance fostered the emergence of ZPD that facilitated the transition from other-regulated to self-regulated L2 performance. To accurately identify the types of scaffolded assistance, I coded and categorized the episodes of IFD on the basis of Cooper's (1999) finding regarding the on-line processing strategies utilized by L2 learners for their comprehension of frequently used English idioms. It is necessary to point out that although Cooper's strategies were mostly concerned with individual learners, due to the similarity in the nature of the tasks employed between his study and the current study (specifically decoding the meaning of selected idioms embedded in a written context), the application of the on-line processing strategies to a large extent helped to increase the precision of the analysis of scaffolded assistance. Particularly the strategies in Cooper's study consisted of guessing from context, discussing and analyzing the idiom, using the literal meaning of the idiom, requesting information, repeating or paraphrasing the idiom, using background knowledge, referring to L1 idioms, and other strategies. Besides the close scrutiny of IFD excerpts from the chat transcripts, I also drew on stimulated recall comments and reflective journal entries for the investigation of the participants' inner thoughts when they offered scaffolded assistance to their partners and the possible effects of such collective or peer-peer scaffolding on English idioms

learning. This triangulation of various data sources gave a comprehensive and coherent view of the issue under study.

Evidence based on the analysis of chat transcripts, stimulated recalls, and reflective journals suggested that during the completion of the idiom-in-context and text-reconstruction tasks, the eight dyads made use of 1) guessing from context, 2) discussing and analyzing the idiom, 3) using the literal meaning of the idiom, 4) using background knowledge, 5) repeating or paraphrasing the idiom, and 6) referring to L1 idioms for the provision of scaffolded assistance. Table 13 lists the frequency and percentage of these six types of scaffolded assistance across the idioms-in-context and text-reconstruction tasks. From it, some important patterns emerge: the first one is the dominance of guessing from context. As can be seen in Table 13, the most common type of scaffolded assistance was guessing from context (73.7% of the time or 174 instances), followed by discussing and analyzing the idiom (11.9% or 28 instances), using the literal meaning (7.6% or 18 instances), using background knowledge (3.4% or 8 instances), repeating or paraphrasing the idiom (1.7% or 4 instances), and referring to L1 idioms (1.7% or 4 instances). This heavy reliance on contextual information for gains in knowledge of the target idioms can also be observed in the number and proportion of each type of scaffolded assistance for all dyads presented in Table 14. These data showed that the two members of the dyads scaffolded each other through almost all of the aforementioned types of assistance, most often in those cases involving guessing from context, ranging from 60.9% to 85.2%. Of additional interest was the finding that guessing from context occurred more frequently in the text-reconstruction tasks (83.3% and 86.7% of the time in task 1 and task 2, respectively) than in the idioms-in-context tasks (56.4% in task 1, and 67.2% in task 2),

Table 13. Frequency and percentage of scaffolded assistance provided, by task (N=8)

Types of scaffolded assistance	Idiom-in-context task 1	Idiom-in-context task 2	Text-reconstruction task 1	Text-reconstruction task 2	Total
1a Guessing from context: using the lexical and semantic cues in the COCA excerpts	18 (32.7%)	26 (42.6%)	22 (36.7%)	17 (28.3%)	83 (35.2%)
1b Guessing from context: using the entire COCA excerpts	13 (23.6%)	15 (24.6%)	28 (46.7%)	35 (58.3%)	91 (38.6%)
Total of 1a and 1b	31 (56.4%)	41 (67.2%)	50 (83.3%)	52 (86.7%)	174 (73.7%)
2 Discussing and analyzing the idiom	11 (20%)	9 (14.8%)	6 (10%)	2 (3.3%)	28 (11.9%)
3 Using the literal meaning of the idiom	6 (10.9%)	4 (6.6%)	3 (5%)	5 (8.3%)	18 (7.6%)
4 Using background knowledge	4 (7.2%)	3 (4.9%)	1 (1.7%)	0 (0%)	8 (3.4%)
5 Repeating or paraphrasing the idiom	2 (3.6%)	1 (1.6%)	0 (0%)	1 (1.7%)	4 (1.7%)
6 Referring to L1 idioms	1 (1.8%)	3 (4.9%)	0 (0%)	0 (0%)	4 (1.7%)
Total	55 (23.3%)	61 (25.8%)	60 (25.4%)	60 (25.4%)	236 (100%)

Table 14. Frequency and percentage of scaffolded assistance provided, by dyad (N=8)

	1a Guessing from context: using the lexical and semantic cues in the COCA excerpts	1b Guessing from context: using the entire COCA excerpts	Total of 1a and 1b	2 Discussing and analyzing the idiom	3 Using the literal meaning of the idiom	4 Using background knowledge	5 Repeating or paraphrasin g the idiom	6 Referring to L1 idioms	Total
A-E	12 (35.3%)	14 (41.2%)	26 (76.5%)	3 (8.8%)	2 (5.9%)	1 (2.9%)	2 (5.9%)	0 (0%)	34 (14.4%)
B-F	9 (33.3%)	10 (37%)	19 (70.3%)	5 (18.5%)	3 (11.1%)	0 (0%)	0 (0%)	0 (0%)	27 (11.4%)
C-G	7 (25.9%)	16 (59.3%)	23 (85.2%)	1 (3.7%)	2 (7.4%)	0 (0%)	0 (0%)	1 (3.7%)	27 (11.4%)
D-H	5 (21.7%)	9 (39.1%)	14 (60.9%)	4 (17.4%)	2 (8.7%)	2 (8.7%)	0 (0%)	1 (4.3%)	23 (9.7%)
I-M	15 (44.1%)	10 (29.4%)	25 (73.5%)	2 (5.9%)	4 (11.8%)	2 (5.9%)	0 (0%)	1 (2.9%)	34 (14.4%)
J-N	10 (47.6%)	11 (52.4%)	21 (72.4%)	5 (17.2%)	1 (3.4%)	1 (3.4%)	1 (3.4%)	0 (0%)	29 (12.3%)
K-O	8 (29.6%)	12 (44.4%)	20 (74.1%)	3 (11.1%)	3 (11.1%)	1 (3.7%)	0 (0%)	0 (0%)	27 (11.4%)
L-P	17 (48.6%)	9 (25.7%)	26 (74.3%)	5 (14.3%)	1 (2.9%)	1 (2.9%)	0 (0%)	2 (5.7%)	35 (14.8%)
Total	83 (35.2%)	91 (38.6%)	174 (73.7%)	28 (11.9%)	18 (7.6%)	8 (3.4%)	3 (1.3%)	5 (2.1%)	236 (100%)

and a roughly equal number of uses of the lexical and semantic cues in the COCA excerpts (35.2% of the time) and the entire COCA excerpts (38.6%) for guessing from context.

Despite the operationalization of scaffolded assistance that the above descriptive quantitative results demonstrate, a closer, qualitative examination of the dyadic interaction offers a revealing window into how peer-peer scaffolding aided in the development of an improved understanding of the meaning of the target idioms. For the qualitative analysis, in the following section I will provide specific examples of each type of the scaffolded assistance mentioned earlier, along with explanations of how the assistance was requested, offered, and received by the dyads during online chat. Similar to the analysis of communication strategies, the investigation of scaffolded assistance was mainly carried out in relation to the excerpts of relevant IFD. Specifically, each IFD excerpt consists of words in boldface that stand for the scaffolded assistance under discussion and italicized words enclosed in brackets denoting the corresponding explanations. In addition to the analysis of chat transcripts, stimulated recall comments and reflective journal entries were also referred to support findings from chat data. It was noteworthy, based on the qualitative evidence, that the scaffolded assistance did not just contributed to the creation of ZPD that enabled the participants to decode and comprehend the meaning of the target idioms through discussions with their partners (in other words, other-regulation), but also resulted in their incorporation and utilization of co-constructed English idiom knowledge to solve new L2 problems (also known as self-regulation). This observation will be further elaborated on the basis of the analysis of the IFD excerpts that illustrate the six types of scaffolded assistance.

4.3.1. Guessing from context

In the majority of their attempts to decipher the meaning of the target idioms, the dyads assisted each other by drawing on the contextual cues that were available to them. In utilizing the context, the dyad members often played the roles of experts and novices simultaneously, and meanwhile activated their ZPD that allowed them to achieve a higher level of L2 performance. In particular, Excerpt 32 demonstrates how B and F employed the COCA excerpt in which the idiom *take the plunge* was embedded for the inference of its meaning,

Excerpt 32: Guessing from context (B and F's idiom focused dialogue in idiom-in-context task 2)

1. B: So take the plunge
2. B: be brave?
3. B: be courageous?
4. F: let me think for a sec
5. F: I think may means attend the tasks or may take the responsibility
6. F: and to believe themselves that they can try something new
7. B: **how do you know** [*Request for further assistance*]
8. F: **it says Twitter offer people new innovative ways to learn**
9. F: **and the speaker learned a lot, so he believe himself he can learn new ways**
[*Use of the contextual clue*]
10. B: I see
11. F: I am not sure if it is correct. What do u think?
12. B: **but the sentence also write "if you take the plunge and jump head first?"**
11. B: **Not everybody has the brave to explore and learn new things in Twiter**
12. B: **So you really need courage to jump head first, right?** [*Use of the contextual clue*]
13. F: **so maybe means to be brave and confident too** [*Utilization of scaffolded assistance*]

14. B: **ok, so lets write, believe in themselves and be brave to try new things**

[*Utilization of scaffolded assistance*]

15. F: yeah

After being informed of F's thoughts about the meaning of "take the plunge", B noticed the difference and explicitly asked for assistance (line 7). F's explanation in lines 8 and 9 increased B's awareness of the contextual information in the COCA excerpt that he had not been able to be attentive to, and therefore extended his ZPD by offering him an additional perspective on the possible definition of the target idiom (signaled by B's confirmation *I see* in line 10). Similarly, in lines 11 through 12, the scaffolded assistance provided by B in response to F's request for feedback allowed F to stretch her ZPD through further reflection on the context she was exposed to and recognition of the cogency of B's utterances (line 13). During the above interaction, B and F acted as both the more expert member of the dyad who provided scaffolded assistance by describing the situation presented in the entire COCA excerpt, and the novice member seeking help upon noticing the gap between his or her and his or her partner's output. Meanwhile, the scaffolded assistance was appreciated by both parties and incorporated into their follow-up turns (lines 14 & 15).

In addition to the explicit requests for and provision of scaffolded assistance illustrated above, it was also quite common that the dyads offered each other peer support implicitly by virtue of the lexical and semantic cues in the COCA excerpts, as in the following example:

Excerpt 33: Guessing from context (K and O's idiom focused dialogue in idiom-in-context task 1)

1. O: hmm, q3\, run-of-the-mill?

2. K: yes
3. O: now I'm lost
4. K: I think the last two sentences can help [*Hint to draw attention to the semantic cues in the context*]
5. O: do you think it means the opposite of high-quality [*Confirmation check to request assistance*]
6. O: like simply or low-quality
7. O: **since the question says "it's not some run-of-the-mill lab. This is a high-quality lab."**
8. K: **maybe. The data is in a high-quality lab so it is kind of not norm stuffs** [*Provision of direct assistance with explanation of the context*]
9. K: normal stuffs
10. O: its a verb? [*Request for additional assistance*]
11. K: well, it is before lab, lab is a noun, so... [*Use of indirect hint*]
12. O: u r right, it shold be a adj or a noun [*Attempt to provide the solution*]
13. K: **should be an adj because it is similar to high-quality** [*Use of metatalk to solve the problem*]
14. O: ok, so we agree it means low-quality or just normal
15. K: yes exactly

The above excerpt illustrates the process through which the expert learner, K, scaffolded the novice learner, O's understanding of the idiom *run-of-the-mill* by providing implicit, and yet effective assistance in capitalizing on the lexical and semantic cues in the context.

It was evident that K offered assistance immediately upon receiving O's request indicating his inability to solve the idiom problem he was grappling with (line 3).

However, instead of directly sharing her answer with O, in line 4 K pointed out the contextual clue that O could use for his guess. This implicit feedback seemed to lead to O's subsequent success in locating the lexical item signaling contrast (specifically *high-quality*) and deciphering the meaning of the target idiom in the following few turns (lines

5 through 7). To facilitate O's accurate interpretation, K also offered explicit assistance through her explanation of *run-of-the-mill* in relation to the context (line 8). In line 10, it appeared that once again O expressed his need for assistance by sending out a confirmation request, which was quickly responded by K who reminded him of the relevant contextual specifics (line 11). Having received the scaffolding from K, O put forward a solution to his syntactic problem with some degree of uncertainty (line 12), and his attempt elicited K's metatalk that explicitly provided the solution (line 13). Overall, through the provision of both explicit and implicit assistance, K moved O along within his ZPD and scaffolded his processing and comprehension of the target idiom.

The stimulated recall comments made by B and F to a large extent supported the positive role of guessing from context in expanding their English idiom knowledge, for both of them indicated that the discussion around the context motivated them to discover and heed the clues that are essential to a more thorough understanding of the meaning of the target idioms. As B noted, "It was both fun and challenging. I needed to discern the words and phrases in the excerpts that were useful for pinpointing the meaning of the idioms. Although it took time and efforts, it was worth it because it gave me a great deal of input." O, on the other hand, described how the interaction between K and him enhanced his problem-solving skill, as he put it in the following,

Excerpt 34: O's stimulated recall comments

Researcher: Can you share your thoughts on your discussion with K about the idiom *run-of-the-mill*?

O: In my opinion, K was both a tutor and a teacher. As a tutor, she gave a lot of hints from the excerpts that helped me understand the definitions. As a teacher, she had good knowledge about English idioms, and this was why her answers seemed more reasonable and authoritative. In working with her, I had sufficient autonomy to solve the idiom

problem on my own and a consultant to refer to so that my ideas would not deviate from hers too much. With the help of K, I was able to figure out the solutions smoothly without feeling overwhelmed. Also I learned that I should improve my reading abilities and work harder on my English. The more effort I made, the better I could collaborate with my partner.

4.3.2. Discussing and analyzing the idiom & using the literal meaning of the idiom

On many occasions, while attending to the contextual clues, the two members of the dyad attempted to decipher the meaning of the target idioms through discussing and analyzing the idiom and using the literal meaning of the idiom. Discussing and analyzing the idiom, according to Cooper (1999), involved situations in which L2 learners “talked in general about the idiom and the context before venturing an interpretation” (p. 248). Using the literal meaning of the idiom, on the other hand, occurred when L2 learners “were aware of the metaphorical aspect of idioms, and they concentrated on the literal meaning of the expressions as a key to the figurative meaning” (p. 249). A closer examination of the chat transcripts, stimulated recalls, and reflective journals revealed that the provision of these two types of scaffolding not only advanced the participants’ understanding of the meaning of the target idioms with the assistance of their partners, but also prepared them to become self-regulated in the use of the target idioms during online collaborative interaction. Excerpt 35 from the idioms-in-context task 1 and Excerpt 36 from the text-reconstruction task 1, for instance, demonstrate how one participant L transferred the co-constructed knowledge about the idiom *come into play* from one context to another.

Excerpt 35: Discussing and analyzing the idiom (L and P’s idiom focused dialogue in idiom-in-context task 1)

1. L: Alright, whats the next?
2. P: come into play
3. L: what do you think?
4. P: we need to use the context
5. P: **luck and patience come into play when one advances to the serious photographer level** [*Use of the contextual clue*]
6. L: any idea?
7. L: pay attention on something?
8. P: hmmm
9. P: no idea, but pay attention to doesnt look like a fit here [*Use of metatalk to identify the problem*]
10. P: may be a significant part of something?
11. L: why do you think that? [*Request for assistance with explanation*]
12. P: **play is acting based on script**
13. P: **so come into play means someone have a role in doing something?** [*Provision of scaffolded assistance by discussing and analyzing the idiom*]
14. L: i think it makes sense
15. L: good for the context
16. P: lol...
17. L: okay great, so deal, it means significant to something? [*Other-regulated answer*]
18. P: I think so

At the onset, L seemed to be experiencing difficulty figuring out the proper definition of *come into play* on the basis of the context, which triggered P's follow-up response that involved his interpretation of it stemming from creative thinking and careful analysis (lines 12 and 13). In emphatically agreeing with P's idea (lines 14 and 15), L was in effect embracing it as her own (line 17). Throughout this process, L had transcended what she could do alone by exploiting the scaffolded assistance offered by her partner. In the succeeding text-reconstruction task, L demonstrated her achievement in self-regulated

performance through the use of the knowledge she had gained from P for solving the new idiom problem she encountered.

Excerpt 36: Discussing and analyzing the idiom (L and P's idiom focused dialogue in text-reconstruction task 1)

1. P: what is your answer for the last question?
2. P: do you think it is go off on a tangent?
3. L: I think may be use come into play in the second sentence
4. L: because in the sentence, it shows "A number of factors...make light-duty diesels a viable alternative"
5. L: **we need a idiom means significance here** [*Self-regulated answer*]
6. P: yes
7. P: means have the effect
8. P: what is go off on a tangent, btw?
9. L: it means not focus on the topic
10. P: Got it!

The above excerpt evidenced L's transition from other-regulation to self-regulation in two aspects. First of all, she suggested the meaning of "come into play" without being prompted by P (line 5), which was indicative of her accurate comprehension of this idiom. Secondly, the fact that she offered the correct answer to the question that she and P were discussing reflected her success in converting the knowledge obtained from collaborative interaction to individual use. As she mentioned in her reflective journal, "I appreciate the help I got from my partner because it made me think more deeply and understand better the idioms every time I ran out of ideas."

The progress from other-regulated to self-regulated performance in the understanding and use of the target idioms can also be found in scaffolded assistance involving using the literal meaning of the idiom. Particularly, D and H's IFD episode

centering on *lose track of* illustrates how H increased his control of this idiom in light of D's interpretation of its literal meaning.

Excerpt 37: Using the literal meaning of the idiom (D and H's idiom focused dialogue in idioms-in-context task 1)

1. D: are you finished yet? Let's go to q5
2. H: yes
3. D: lose track of
4. H: is it just mean lose? [*Confirmation check*]
5. H: I don't really know it [*Request for further assistance*]
6. D: probably it means forget something
7. H: sounds good
8. H: q6
9. D: d u want to see my reason for q5
10. H: ya, sure
11. D: **track is like a path, so lost track of means someone got lost on the way to some place, maybe** [*Provision of scaffolded assistance using the literal meaning of the idiom*]
12. H: but the sentence talks about lose track of time
13. D: **if a person lose the way, he forgets how to move ahead, so it means forget** [*Linking the literal and metaphorical meaning of the idiom for further explanation*]
14. D: in q5 Hilary wants people to have watch with alarm so they don't forget time to stretch their body [*Use of contextual clue for confirmation*]
15. H: you r right for this one
16. D: so we stick with it?
17. H: why not, let's use forget
18. D: sure

In this segment, it seemed that H was in need of additional assistance because he was not confident in the accuracy of his understanding of the definition of *lose track of* (lines 4

through 5). However, instead of entirely relying on the contextual information, his partner D provided appropriate scaffolding on the basis of literal interpretation of this idiom (lines 11). She also linked the literal and metaphorical meaning (line 13) and referred to the context to further H's comprehension of its meaning (line 14). Having gained a clear picture of the literal origin of *lose track of* and the suitability of its metaphorical meaning to the context, H was fully convinced and showed his approval of D's viewpoint (line 17). In collaborating on the subsequent text-reconstruction task, H's online interaction record exhibited evidence of self-regulation in the use of *lose track of* specifically in the following excerpt:

Excerpt 38: Using the literal meaning of the idiom (D and H's idiom focused dialogue in text-reconstruction task 1)

1. H: I think
2. H: Q5 answer is lose track of
3. H: since its mentioning about the time
4. D: me too, i think is lose track of
5. H: **this idiom emphasize forget something** [*Self-regulated answer*]
6. H: if you put the heat on time, you can't enjoy yourself
7. D: yeah, I agree

Similar to the interaction between L and P described earlier, in the above excerpt H's better grasp of the target idiom can be observed in his ability to recall its meaning (line 5) and identify and correct the error resulting from its improper use (lines 2, 3, 6). As a result, D's utilization of the literal meaning of the target idiom appeared to help H advance within his ZPD from other-regulated to self-regulated performance.

In some cases, however, the use of literal meaning yielded incorrect solutions to the idiom problems at hand, as the following example shows,

Excerpt 39: Using the literal meaning of the idiom (J and N's idiom focused dialogue in idioms-in-context task 2)

1. J: what about your answer for the next one
2. N: let's finish ours first and compare with it
3. J: take somebody to task
4. J: **i think it meanstake someone to complete the work** [*Provision of scaffolded assistance using the literal meaning of the idiom*]
5. J: take someone to complete the work
6. N: why?
7. J: Cuz task is just like work. [*Second attempt to use the literal meaning of the idiom*]
8. N: oaky

Here the expert J scaffolded the novice N in light of her literal interpretation of *take somebody to task*. However, her reliance on the literal meaning seemed to lead N in the wrong direction within his ZPD due to the difference between the literal and figurative meaning of this idiom. Not surprisingly, in moving from other-regulated to self-regulated performance in the comprehension and use of *take somebody to task*, both J and N failed to correctly identify its improper use in the succeeding text-reconstruction task.

4.3.3. Using background knowledge, repeating or paraphrasing the idiom, and referring to L1 idioms

Although relatively few in number, instances of using background knowledge, repeating or paraphrasing the idiom, and referring to L1 idioms occurred throughout the process of peer-peer scaffolding within the IFD episodes, and a perusal of these three types of scaffolded assistance revealed that they were largely contingent upon, and in relation to, the dyad members' L2 needs. In particular, I and M's IFD episode around the target idiom *shift gears* illustrates how I tailored his explanation of its meaning to assist in M's comprehension.

Excerpt 40: Using background knowledge (I and M's idiom focused dialogue in idioms-in-context task 2)

1. I: do you go to the next question? it is shift gear
2. M: yep
3. I: i think means to 'change'
4. M: i am not sure about mine
5. I: writer and salesperson are different, so shift gears maybe means change completely from one thing to another [*Provision of scaffolded assistance by guessing from context*]
6. M: let me think
7. M: what does gear mean?
8. I: do you know car gear, for changing the speed?
9. I: if you want to move your car, you shift the gear from parking to drive [*Continuation of scaffolding by discussing and analyzing the idiom*]
10. M: I know what you are saying, i have a car, haha
11. I: **yes, you always shift gear when driving cars** [*Provision of contingent scaffolding by using background knowledge*]
12. M: ok, i agree, it means to change [*Repetition of the definition*]
13. M: you know a lot of English words
13. I: for the driver test, lol!
14. M: ^_^

During the above interaction, I made use of both guessing from context (line 5) and discussing and analyzing the idiom (line 9) to scaffold M's understanding of the meaning of "shift gears". These two types of scaffolded assistance, however, seemed to be outside of M's ZPD and thus did not result in her employment of the scaffolding provided for solving her idiom problem. As an alternative, I drew on his driving experience to further explain the meaning and support M's cognitive processing. This use of background knowledge seemed to fall into M's ZPD and promote the learning of the target idiom

(signaled by M's echoing of I's view in line 12). In her comment about the above excerpt during the stimulated recall, M also indicated the compatibility of I's utilization of background knowledge with her L2 ability: "Getting the meaning from the COCA excerpts was daunting because of my inadequate English reading proficiency. I's reference to driving really helped ease the burden on me because this was something I had prior knowledge about and could instantly relate to."

Similarly, in Excerpt 41 in which K and O were discussing the meaning of *put the heat on*, K contingently paraphrased the target idiom to compensate for O's lack of comprehension of its meaning in relation to the context,

Excerpt 41: Repeating or paraphrasing the idiom (I and M's idiom focused dialogue in idioms-in-context task 2)

1. K: I guess the meaning of 'put the heat on' is kinda giving pressure. That is because he faced a lot of pressure. This idiom can be related to that meaning. [*Use of contextual clue*]
2. O: q6?
3. O: i ll come soon for q6
4. K: we only have a few minutes
5. K: **if you place the heat on something, the heat will bring more pressure cause it is hot** [*Provision of scaffolded assistance by paraphrasing the idiom*]
6. O: ok, i see the connection
7. O: to pressurize someone [*Self-regulated answer*]
8. O: Q7
9. K: yea

Here K first approached *put the heat on* by examining the contextual clue (line 1), and then swiftly resorted to paraphrasing it (line 5) in response to O's reaction (lines 2 through 3). This change in the way of providing scaffolded assistance seemed to address

O's need for L2 help and advance him to self-regulation in the collaborative process (line 7).

In a few instances, the dyad members referred to L1 idioms to scaffold each other's interpretation of the meaning of the target idioms. One of the dyads of the same L1, C and G, for example, drew on a synonym in Mandarin Chinese to determine the meaning of *draw a line between*.

Excerpt 42: Referring to L1 idioms (C and G's idiom focused dialogue in idioms-in-context task 1)

1. C: No7, what do you think
2. G: serious music and popular music
3. G: no idea, what do you think about it [*Need for further assistance*]
4. C: **hua qing jie xian** (Chinese equivalent for "draw a line between") [*Provision of scaffolded assistance by referring to an L1 idiom*]
5. C: shi bu shi (do you think so?)
6. G: maybe means relationship between two things
7. G: can you transfer your meaning in English?
8. G: how to say hua qing jiexian [*Ask for more help*]
9. C: no i do not know
10. G: may be show two things are very different
11. C: yep, think so

In this episode, C deployed an idiom in Mandarin Chinese that that has similar meaning to *draw a line between* to assist her partner G who was not capable of decoding its meaning solely based on the contextual cue (lines 2 through 3). Although uncertain about the equivalency of the Chinese idiom (lines 7 through 8), it seemed that C's link to the L1 idiom to a great extent threw light on the meaning of *draw a line between* and engage G in self-regulated performance to independently arrive at the correct definition (line 10). In

his reflective journal, G mentioned specifically how C's reference to the Chinese idiom was facilitative of his comprehension of the target idiom,

Excerpt 43: G's reflective journal entry

Once we started chatting online, we can directly discuss the idioms and the sentences together to get help. Sometimes I had problems figuring out the meaning by just looking at the sentences, and my partner used Chinese idioms to explain them. This was an efficient way to help me out because we can apply what we have known to learning new things.

4.3.4. Section summary

To address research question 3, this section examined the provision of scaffolded assistance within the eight dyads' IFD episodes during their real-time collaborative interaction. Analysis of the chat transcripts, stimulated recall comments, and reflective journal entries showed that in engaging in discussion around the meaning of the sixteen target idioms, the members of the dyad employed 1) guessing from context, 2) discussing and analyzing the idiom, 3) using the literal meaning of the idiom, 4) using background knowledge, 5) repeating or paraphrasing the idiom, and 6) referring to L1 idioms to assist in each other's comprehension. Among these six types of peer-peer assistance, guessing from context constituted the bulk of the scaffolding offered to facilitate accurate interpretation. Meanwhile, in attending to the contextual clues available, the dyad members attempted to decipher the metaphorical meaning of an idiom through a variety of efforts, including discussing and analyzing the idiom, relying on the literal meaning of and background knowledge about the idiom, repeating or paraphrasing the idiom, as well as referring to L1 idioms. Despite the possibility of co-constructing incorrect knowledge, overall the provision of peer-peer assistance scaffolded the comprehension and retention

of the definitions of the target idioms, contributed to the emergence and extension of ZPD, and helped smooth the transition from other-regulation to self-regulation.

4.4. RQ4: Characteristics of Online Collaborative Interaction that Dyads with High and Low Scores Exhibited and the Connection of These Characteristics to Their Learning of Target Idiom Knowledge

Research question four focused on the characteristics of online collaborative interaction that dyads with high and low scores exhibited and the connection of the characteristics to the participants' learning and retaining of target idiom knowledge. This question concerned how the acquisition of the target idioms occurred during the real-time collaborative interaction between the two members of the dyad and how the participants internalized target idiom knowledge co-constructed within IFD episodes. For the analysis of the characteristics, I looked at each participant's scores on the immediate and short-term delayed posttests, as well as the VKS scores they received for the sixteen target idioms on the pretest and long-term delayed posttests. The two dyads obtaining the highest and lowest scores were selected as the focal participants, and their chat transcripts constituted the data source for the examination of the characteristics of peer-peer collaborative interaction. For the analysis of the process through which the focal participants learned and retained target idiom knowledge, I adopted the microgenetic approach to track their moment-by-moment changes in comprehension and utilization of the target idioms. Specifically, the microgenetic account of the participants' idiom knowledge development was based on the definitions they provided or the sentences they created on the VKS, the IFD episodes they produced in the completion of the idioms-in-context and text-reconstruction tasks, and their explanation of the meaning of the target

idioms in the stimulated recalls. The use of both quantitative and qualitative measures offered a multi-dimensional and in-depth perspective into the shift of English idiom learning from the inter-mental to the intra-mental through SCMC-based collaborative dialogue.

A close examination of the participants' posttest and VKS scores, along with the microgenetic analysis of IFD episodes, stimulated recall comments, and VKS responses demonstrated their increased control of knowledge about the meaning of the target idioms. In addition, the characteristics of online collaborative interaction that dyads with high and low scores differed in terms of the length and complexity, that is, while IFD episodes of dyads with high scores in general involved more turns and were syntactically and lexically more complex in nature, those of dyads with low scores for the most part consisted of fewer turns and were relatively simple in light of grammar and vocabulary. This difference, furthermore, seemed to influence the dyad members' success in comprehending and retaining the meaning of the target idioms. In the following section, I will elaborate on these findings by first introducing the results of the posttest and VKS assessments and the selection of the focal participants, and then provided a thorough microgenetic account of the focal participants' target idiom knowledge growth.

4.4.1. Characteristics of online collaborative interaction that dyads with high and low scores exhibited

Table 15 summarizes the descriptive statistics for the immediate and short-term (one week) delayed posttests, and from it, several observations can be made. First of all, it supports the assertion that discussions around the target idioms were facilitative of the participants' comprehension and retention of their definitions. As shown in Table 15,

Table 15. Means and standard deviations of immediate and short-term delayed posttest scores (N=16)

Participants	Immediate posttest I scores (Accuracy rates)	Immediate posttest II scores (Accuracy rates)	Short-term delayed posttest I scores (Accuracy rates)	Short-term delayed posttest II scores (Accuracy rates)
A	8 (100%)	7 (87.5%)	8 (100%)	8 (100%)
B	8 (100%)	7 (87.5%)	6 (75%)	6 (75%)
C	3 (37.5%)	3 (37.5%)	3 (37.5%)	2 (25%)
D	5 (62.5%)	4 (50%)	2 (25%)	5 (62.5%)
E	7 (87.5%)	8 (100%)	6 (75%)	7 (87.5%)
F	8 (100%)	7 (87.5%)	7 (87.5%)	5 (62.5%)
G	2 (25%)	3 (37.5%)	3 (37.5%)	3 (37.5%)
H	5 (62.5%)	4 (50%)	4 (50%)	2 (25%)
I	6 (75%)	4 (50%)	7 (87.5%)	5 (62.5%)
J	4 (50%)	4 (50%)	5 (62.5%)	4 (50%)
K	3 (37.5%)	2 (25%)	2 (25%)	2 (25%)
L	7 (87.5%)	8 (100%)	6 (75%)	6 (75%)
M	6 (75%)	5 (62.5%)	6 (75%)	3 (37.5%)
N	4 (50%)	5 (62.5%)	3 (37.5%)	2 (25%)
O	2 (25%)	2 (25%)	3 (37.5%)	2 (25%)
P	8 (100%)	8 (100%)	7 (87.5%)	8 (100%)
Mean	5.38 (67.19%)	5.06 (63.28%)	4.88 (60.94%)	4.38 (54.69%)
Std. Dev.	2.19 (27.34%)	2.14 (26.80%)	2.00 (24.95%)	2.19 (27.34%)

Table 16. Means and standard deviations of pretest and long-term delayed posttest scores (N=16)

Participants	Pretest I scores (Percentages)	Long-term delayed posttest I scores (Percentages)	Pretest II scores (Percentages)	Long-term delayed posttest II scores (Percentages)
A	10 (25%)	39 (97.5%)	12 (30%)	38 (95%)
B	10 (25%)	30 (75%)	10 (25%)	31 (77.5%)
C	9 (22.5%)	26 (65%)	11 (27.5%)	27 (67.5%)
D	10 (25%)	32 (80%)	9 (22.5%)	34 (85%)
E	12 (30%)	37 (92.5%)	10 (25%)	33 (82.5%)
F	10 (25%)	36 (90%)	12 (30%)	34 (85%)
G	10 (25%)	29 (72.5%)	9 (22.5%)	30 (75%)
H	14 (35%)	35 (87.5%)	13 (32.5%)	31 (77.5%)
I	11 (27.5%)	33 (82.5%)	12 (30%)	36 (90%)
J	12 (30%)	34 (85%)	9 (22.5%)	30 (75%)
K	9 (22.5%)	28 (70%)	11 (27.5%)	25 (62.5%)
L	11 (27.5%)	34 (85%)	13 (32.5%)	33 (82.5%)
M	14 (35%)	32 (80%)	12 (30%)	30 (75%)
N	12 (30%)	31 (77.5%)	11 (27.5%)	35 (87.5%)
O	11 (27.5%)	25 (62.5%)	10 (25%)	30 (75%)
P	11 (27.5%)	36 (90%)	10 (25%)	35 (87.5%)
Mean	11 (27.5%)	32.31 (80.78%)	10.88 (27.19%)	32 (80%)
Std. Dev.	1.51 (3.77%)	3.98 (9.95%)	1.36 (3.4%)	3.39 (8.47%)

**Note.* Pretest I & II scores refer to the scores the participants received for the eight target idioms included in idioms-in-context I & II tasks respectively. The total possible score was 5 (point VKS scale) \times 8 (number of target idiom items) = 40. VKS = Vocabulary Knowledge Scale

on average, the participants scored 5.38 (SD = 2.19) or obtained 67.19% (SD = 27.34%) correct answers on immediate posttest I, and 5.06 (SD = 2.14) or 63.28% (SD = 26.80%) on immediate posttest II. Although there were decreases in accuracy rates on the short-term delayed posttests, where the average score out of 8 target idiom items was 4.88 correct answers (SD = 2.00) or 60.94% (SD = 24.95%) on short-term delayed posttest I and 4.38 (SD = 2.19) or 54.69% (SD = 27.34%) on short-term delayed posttest II, given the fact that the participants had no prior knowledge of or additional exposure during the one-week interval to the meaning of the target idioms, the results of the immediate and short-term delayed posttests suggested that IFD episodes that were indicative of the participants' efforts to understand the metaphorical expressions and their connection to the context, consisted of target idiom learning.

For long-term (two-week) retention measured by VKS scores, descriptive statistics presented in Table 16 showed that prior to the English idiom learning tasks, on pretests I and II the participants' average scores were 11 (SD = 1.51) and 10.88 (SD = 1.36), or 27.5% (SD = 3.77%) and 27.19% (SD = 3.4%) respectively. Through the co-construction of target idiom knowledge within IFD episodes during SCMC-based collaborative interaction, their average scores increased 21.31 (to 32.31, SD = 3.98) or 53.28% (to 80.78%, SD = 9.95%) on long-term delayed posttest I, and 21.12 (to 32, SD = 3.39) or 52.81% (to 80%, SD = 8.47%) on long-term delayed posttest II. It follows that despite the differences in previous knowledge (as revealed by different pretest scores), the participants' multiple encounters with the target idioms, including the attainment of receptive knowledge during the idioms-in-context tasks, productive use in the text-

reconstruction tasks, and verbal reflections in the stimulated recalls, helped familiarize them with and fostered their long-term internalization of the definitions.

Another observation gained from these data was the dyads with high and low scores. From Table 15 and Table 16, it was clear that A-E and L-P were the two dyads with high scores since all four of them had received 6 (or 75%) or above in the immediate and short-term delayed recall of the meaning of the target idioms. Furthermore, their VKS scores on the long-term delayed posttests fell in the 80th percentile or above, indicating effective transfer and continuous maintenance of target idiom knowledge. In contrast, C-G and K-O were the dyads with low scores since they were the least successful in terms of acquiring and sustaining the meaning. Particularly they had all scored 3 (or 37.5%) or below on the immediate and short-term delayed posttests, and obtained equal to or less than 30 (75%) on the long-term delayed posttests. Having determined the dyads with high and low scores, the discussion about the characteristics of their online collaborative interaction will be conducted in relation to the episodes of IFD from chat transcripts produced by A-E, L-P, C-G, and K-O.

A prominent characteristic of online collaborative interaction that dyads with high and low scores exhibited was the resolutions of IFD episodes. Echoing Kim and McDonough (2008), the resolutions of IFD episodes were counted as the decision made in the dyads' last discussion if a target idiom was discussed more than once during online chat. As shown in Table 17, although in total dyads with high scores and low scores produced the same number of IFD episodes ($N = 61$) throughout the current study, dyads with high scores resolved far more episodes of IFD (52 episodes or 85.25%) than dyads with low scores did (29 episodes or 47.54%), and thus had a much smaller percentage of

Table 17. Resolutions of IFD episodes by dyads with high and low posttest scores (N=4)

Dyads with high scores (N=2)				Dyads with low scores (N=2)			
Dyads	No. of IFD episodes	No. (%) resolved	No. (%) unresolved	Dyads	No. of IFD episodes	No. (%) resolved	No. (%) unresolved
A&E	31	27 (87.10%)	4 (12.90%)	C&G	30	13 (43.33%)	17 (56.67%)
L&P	30	25 (83.33%)	5 (16.67%)	K&O	31	16 (51.61%)	15 (48.39%)
Total	61	52 (85.25%)	9 (14.75%)		61	29 (47.54%)	32 (52.45%)

unresolved IFD episodes (9 and 32 episodes, 14.75% and 52.45%, respectively). The difference in the proportion of unresolved episodes of IFD (37.70%) seemed to suggest that dyads with low scores were less capable of solving the idiom problems through collaborative interaction, as the following example suggests,

Excerpt 44: An unresolved IFD episode (C and G's idiom focused dialogue in idioms-in-context task 1)

1. C: 4/ i think it means think in a different way
2. G: i have no idea
3. C: or think outside the box
4. G: i think it's the first meaning
5. G: i think is reasoning in front of audience
6. C: I'm not sure too ☹
7. G: ok...whatever

In the above excerpt, it was clear that C and G had different interpretations of the target idiom *think on one's feet*; however, instead of making efforts to reach consensus on its

meaning through negotiated exchanges, they closed the discussion without coming up with an acceptable solution. This failure to co-construct resolutions can further be seen in the different definition that C and G provided: “think in a different way and outside the box” for C, and “reasoning in front of audience” for G.

In other cases, the initiation of the discussion around the target idioms did not meet with responses.

Excerpt 45: An unresolved IFD episode (K and O’s idiom focused dialogue in text-reconstruction task 1)

1. K: I think Q3 answer is lose track of
2. O: because it says no more connection and no more negligible
3. K: so
4. K: yea
5. O: number 2 is actually draw a line between
6. O: it says the difference between...
7. K: I am in q3 now
8. K: lets do another thing first
9. O: ok

Here it seemed that K was not solving the idiom problem at the same pace as O when the above discussion took place. Despite the fact K initiated the IFD episode around *lose track of*, O at that moment was focusing on a different idiom and therefore might not be able to attend to K’s utterance. The fact that they communicated through the text displayed on the computer screen was also quite likely to add to the difficulty of staying in close touch with each other. As a result of her message being ignored by O, it was impossible for K to reach an agreeable resolution with her partner. The lack of in-depth discussion of the target idioms would naturally reduce the likelihood of gaining a full comprehension and retention of their definitions on the part of both parties.

Another important characteristic was the complexity of resolved IFD episodes. Echoing prior research (for example, Ellis et al. (2001a), Loewen (2004), & Smith (2005)) on the nature of LREs, IFD episodes in the current study were considered complex if they were comprised of more than one exchange and simple if they involved only one exchange. It was noteworthy that the IFD episodes resolved by dyads with high scores in general involved more turns than those resolved by dyads with low scores. Among the IFD episodes resolved by A-E and L-P (52 in total), over half of them (35 episodes, 67.31%) took more than one exchange for both members to reach consensus. By contrast, only slightly more than one-third (10 episodes, 34.48%) of the resolved LREs generated by C-G and K-O (29 episodes in total) consisted of more than one exchange. A typical example of IFD episodes resolved by dyads with high scores can be found in A and E's collaborative interaction revolving around the target idiom *think on one's feet*.

Excerpt 46: A resolved IFD episode by dyads with high scores (A and E's idiom focused dialogue in idioms-in-context task 1)

1. A: I think that think on one's feet is think on the spot
2. E: do you go to the next one
3. A: what do you think?
4. E: I think means agree with others ideas
5. E: or mean someone is kind, they could understand others by thinking from their perspectives
6. A: hmm, but isn't challenges means more about thinking on the spot to solve the challenge?
7. A: and the contestants have to think fast because they need to find solutions within minutes!!!
8. A: Alright.
9. A: what is brainstorm?
10. E: brainstorm is like the situation where someone suddenly have a good idea

11. A: ok, then think on the spot does make sense
12. E: yes, and also because the name for the component is Instant Challenges.
13. A: Got it! Instant means think really quickly, like sending instant message
14. E: so agreed?
15. A: yes, I think so. You are so smart
16. E: haha

The complexity of the above IFD episodes can be embodied in three aspects. First of all, a glimpse of the above interaction makes it clear that it actually included 4 question-and-response exchanges and therefore was complex in nature. Additionally, throughout the discussion, A and E employed syntactically complex sentences such as subordinate clauses (for example, the use of the subordinate conjunctions “because” in lines 7 & 12, and “where” in line 10) and relatively advanced lexical items (for instance, A’s utilization of “on the spot” in line 1, and E’s exploitation of “from their perspectives” in line 11) for their languaging about the meaning of *think on one’s feet*. Most importantly, during the above negotiated interaction, both A and E enhanced their cognitive processing of the target idiom by establishing its form-meaning mapping (lines 11 & 13) and linking it more closely to the context (lines 6 through 7, 9 through 10, 12 through 13). In contrast, IFD episodes resolved by dyads with low scores were comparatively simple in light of number of turns, linguistic structures, and evidence of cognitive processing.

Excerpt 47: A resolved IFD episode by dyads with low scores (K and O’s idiom focused dialogue in idioms-in-context task 1)

1. K: keep tabs on
2. K: what do u think?
3. K: like checking on something?
4. O: yes something like that
5. K: alright. sure

This IFD episode had only one exchange between K and O, was simple in terms of grammar and vocabulary, and did not inform much of the dyad members' cognitive processing of *keep tabs on*. As Loewen (2003) pointed out, "the complexity or length of negotiation surrounding a linguistic item may influence the saliency of that item, with longer negotiation sequences being potentially more salient" (Loewen, 2003, p. 319). For this reason, the more complex IFD episodes that dyads with high scores generated for the resolutions may increase the saliency of the target idioms. In addition, the greater cognitive efforts they had made during this process may promote their comprehension and retention, and ultimately lead to the high scores they obtained on the immediate and delayed posttests.

4.4.2. Microgenetic analysis of the moment-by-moment development of target idiom knowledge

The above analysis has offered a preliminary sketch of the characteristics of online collaborative interaction that dyads with high and low scores exhibited; however, to better understand the connection between the participants' discussions about an idiom and their learning of it, it seemed necessary to examine the nature of IFD episodes in relation to the participants' development of target idiom knowledge. In the following section, I will situate the IFD episodes produced by A-E, L-P, C-G, and K-O in their entire learning process by providing a microgenetic account of their moment-by-moment changes in comprehension and utilization of the target idioms.

For dyads with high scores, their IFD episodes appeared to play an essential role in facilitating their successful progress through the learning process. In the case of A and E, both of them indicated a lack of prior knowledge about the target idiom *draw a line*

Table 18. Microgenetic analysis of A and E's development of knowledge about *draw a line between*

Target Idiom	Draw a line between	
Dyad	A	E
Pretest Week 8	I have seen this idiom before, but I don't know what it means.	I don't remember having seen this idiom before.
Idioms-in-context task 1 Week 10	Many cultures don't draw a line between serious music and popular music, and when an African drummer is drumming, that is definitely serious, although it's also entertaining. But it's entertaining for me to listen to Beethoven.	
IFD episode around <i>draw a line between</i> Week 10	<ol style="list-style-type: none"> 1. A: What do you think is the meaning of draw a line between? 2. E: I am working on it now 3. A: is it showing the clear distinction between two things? 4. A: Because the text says that many cultures does not want serious music and popular music to connect with each other. 5. E: my guess is that it may mean divided something into 2 different parts and disconnect with this two parts 6. E: for example, in high school my deskmate sometimes draw a line on out desk to disconnect with me 7. A: Haha, I had that experience too 8. A: ok. So we can put make a distinction between 2 things by disconnecting them 9. E: Well said. 10. A: sure 	
Immediate posttests (Definition-supply) Week 10	<i>Distinguish</i>	<i>Separate two things by differentiating the differences</i>
Text-reconstruction task Week 11	African Arts does not think on their feet what is "art" and what is not, or what qualifies as "acceptable" visual culture, expressive media, or cultural heritage. Phenomena such as postage stamps and advertising signage are not ordinarily considered to be "art," yet they merit discussion and presentation, for they demonstrate the powerful role of visual culture in shaping social, political, and historical realities.	

Table 18. Continued

IFD episode around <i>draw a line between</i> Week 11	<p>1. A: The fifth one is draw a line between</p> <p>2. E: oh</p> <p>3. E: we are different</p> <p>4. E: could you explain your ideas?</p> <p>5. A: because draw a line between means tell the difference, here in the sentence the boundaries between art and visual culture are blurred because Africa Arts do not distinguish these 2</p> <p>6. E: yeah, it is correct</p> <p>7. E: think on their feet is weird here</p> <p>8. A: exactly!!</p>	
Stimulated Recalls Week 11	<p>Researcher: What is the meaning of draw a line between?</p> <p>A: Oh, I remembered. It means divide something into two parts and know that they are different from each other</p> <p>Researcher: Good! How did you remember it?</p> <p>A: I talked about it with E during online chat, the context gave me some hints, and I can visualize it in my head, you know, draw a line between (made a gesture of drawing a line using her finger)</p>	<p>E: This one is quite interesting because it reminds me of my high school classmate.</p> <p>Researcher: Ok. So what do you think it means?</p> <p>E: Something like distinguish from one to each other because we used to draw a line on our desk to show the boundary.</p> <p>Researcher: OK. Excellent!</p>
Short-term delayed posttest (Definition- supply) Week 11	<i>Distinguish</i>	<i>Make a distinction between, to distinguish one from the other</i>
Long-term delayed posttest Week 14	<p>I know this word. It means <i>distinguish</i>.</p> <p>I can use this word in a sentence: <i>In today's society, it is unfair to draw a line between the poor and the wealthy.</i></p>	<p>I know this word. It means <i>tell clearly the difference between two things</i>.</p> <p>I can use this word in a sentence: <i>It is difficult to draw a line between right and wrong at certain issues.</i></p>

Table 19. Microgenetic analysis of L and P's development of knowledge about *off the wall*

Target Idiom	Off the wall	
Dyad	L	P
Pretest Week 8	I have seen this idiom before, but I don't know what it means.	I have seen this idioms before, and I think it means <i>fall down</i>
Idioms-in-context task 2 Week 11	Over time, his tunnels have become a familiar space that no longer triggers his phobia, and he feels he has good reason to face his fear day after day. "The stuff I've found has been outrageous, totally off the wall ," he says. "The work has been fascinating. Who would have dreamed I would find two almost complete buildings."	
IFD episode around <i>off the wall</i> Week 11	<ol style="list-style-type: none"> 1. L: ok~ 2. P: off the wall 3. L: what does outrageous mean? 4. P: I don't know... 5. P: but I think off the wall could be something unusual 6. P: maybe 'above expectations' 7. L: yes, like ridiculous or crazy 8. P: hmm, I think maybe amazing, in a positive way 7. L: not ordinary? 8. L: extraordinary? 8. P: Yes! 9. L: ok~ what about the reason? 10. P: Like you said, context again haha 11. L: ha ha... 12. L: Really I don't know what write 13. P: I think it's because it has similar meaning with 'fascinating' 14. L: and 'who would have dreamed' 15. L: so we know how excited he was 16. P: great idea! 17. L: ok, let's go to the next one 	
Immediate posttests (Definition-supply) Week 11	<i>bizarre, extraordinary</i>	<i>Unusual, spectacular</i>

Table 19. Continued

Text-reconstruction task 2 Week 13	Jean is known for “ rule of thumb , arty and odd stuff“ sometimes using a Holga (a plastic toy camera with a plastic lens), making derivative images from 35mm slides, or shooting architectural images transformed into designs and using composition which emphasizes design, line and color, rather than a mere recording of a scene.	
IFD episode around <i>off the wall</i> Week 13	1. L: I think the second is the off the wall 2. L: because in the sentence, it shows “arty and odd stuff” 3. P: yes 4. P: we need a parallel to these words means unusual 5. L: Same here	
Stimulated Recalls Week 13	L: Off the wall...Hmm, it means not common, not ordinary Researcher: Like not follow the tradition L: yeah, kind of, or something even more negative, strange or absurd.	Researcher: Could you explain the meaning of <i>off the wall</i> ? E: Oh, this one really gave me a hard time because it’s really not about what’s going on with the wall (laugh). Researcher: Ok. So what do you think it means? E: Unusual, odd, strange, any words that can be used to describe something not normal. Research: Great!
Short-term delayed posttest (Definition-supply) Week 13	<i>Strange or unusual</i>	<i>Not normal, odd, or unconventional</i>
Long-term delayed posttest Week 16	I know this word. It means <i>odd</i> . I can use this word in a sentence: <i>My roommate is a little off the wall since she likes to play loud music at midnight.</i>	I know this word. It means <i>unusual, extraordinary, or abnormal</i> I can use this word in a sentence: <i>The left-sided angel statue in front of the library looks quite off the wall.</i>

Table 20. Microgenetic analysis of C and G's development of knowledge about *take at face value*

Target Idiom	Take at face value	
Dyad	C	G
Pretest Week 8	I don't remember having seen this idiom before.	I have seen this idiom before, but I don't know what it means.
Idioms-in-context task 1 Week 10	The army also faces a credibility issue. They promise to hold elections within six months but in a country where the regime could never be taken at face value , that's subject to verification.	
IFD episode around <i>take at face value</i> Week 10	<ol style="list-style-type: none"> 1. C: taken at face value 2. C: what is it meaning? 3. C: accepted? 4. G: I am not sure, this one is pretty hard 5. C: could never be accepted 6. C: how about the explanation? 7. C: they promised but 8. C: but is to contrast 9. G: the people is not sure about the elections 10. C: the use of "but" 11. C: in the sentence. so should be correct 12. G: ? 13. C: wait a second i didnt finish the first one 14. C: plz take ur time. 	
Immediate posttests (Definition-supply) Week 10	<i>Judge by someone's appearance</i>	<i>Treasure reputation without questions</i>
Text-reconstruction task Week 11	The program directors had received feedback from students in the past that weekly meetings were not relevant to them, which was part and parcel of as an indication that students were interested only in activities that supported their own projects. But the journals reflected something different: Students are quite likely to embrace activities that are not relevant to their work, as long as those activities are interesting.	

Table 20. Continued

IFD episode around <i>take at face value</i> Week 11	<p>1. G: what about the first one</p> <p>2. C: i couldn't figure it out</p> <p>3. C: I'll figure it out later when i finish the others</p> <p>4. G: the third is Run-of-the-mill</p> <p>5. C: the first one is take at face value</p> <p>6. G: take at face value?</p> <p>7. C: yep</p>	
Stimulated Recalls Week 11	<p>Researcher: Could you explain the meaning of <i>take at face value</i>?</p> <p>C: Probably means looking at just the appearance of a person, or, or the words one says, but not what he or she does.</p> <p>Researcher: How do you know all these details?</p> <p>C: From the sentence (pointed at the COCA excerpt). It shows the <i>credibility issues</i> and <i>verification</i>. This idiom shows that the regime could never be trusted based on only what they said, but their actions as well.</p>	<p>Researcher: OK. Tell me about the meaning of <i>take at face value</i>.</p> <p>G: Uh...taken seriously?</p> <p>Researcher: Why do you think this is the correct meaning?</p> <p>G: This is the best meaning according to the sentence.</p> <p>Researcher: OK.</p>
Short-term delayed posttest (Definition-supply) Week 11	<i>Give an assumption of something based on its appearance</i>	<i>Regard something as important thing</i>
Long-term delayed posttest Week 14	<p>I know this word. It means <i>to judge something depend on its appearance</i>.</p> <p>I can use this word in a sentence:</p> <p><i>The calculus assignment was taken as face value as an easy one, but it actually took a lot of thinking and analysis.</i></p>	<p>I know this word. It means <i>something should pay attention</i></p>

Table 21. Microgenetic analysis of K and O's development of knowledge about *keep abreast of*

Target Idiom	Keep abreast of	
Dyad	K	O
Pretest Week 8	I have seen this idioms before, and I think it means <i>keep the basic part or important/main part</i>	I have seen this idiom before, but I don't know what it means.
Idioms-in-context task 2 Week 11	To summarize, today's youths are facing many critical issues that often require social workers' assistance to resolve. It is important that we keep abreast of the latest information and developments in practice concerning children and adolescents so that we may provide the best available services.	
IFD episode around <i>keep abreast of</i> Week 11	1. K: keep abreast of? 2. O: yes 3. K: i think it means to keep focus on 4. O: get to know something? 5. K: okay 6. O: Alright, im in #7	
Immediate posttests (Definition-supply) Week 11	<i>Focus on the most important part of something</i>	<i>Know about the information</i>
Text-reconstruction task 2 Week 13	There are many opportunities for primary care to be involved in the identification, diagnosis and management of AF in order to reduce the incidence and devastating consequences of stroke. There have been advances in our understanding of AF and clinicians need to come into play developments and to understand and use the range of guidelines and clinical management tools available to them.	
IFD episode around <i>keep abreast of</i> Week 13	1. K: 5th would be keep tabs on? 2. O: keep abreast of the next one right? 3. K: wait 4. K: okay 5. K: I don't know, keep abreast of means focus on, right? I think it do not match understand 6. O: I am not sure, just guess 7. O: maybe you are right, it is keep tabs on	

Table 21. Continued

Stimulated Recalls Week 13	<p>K: Keep abreast of...I don't know. I did not pay much attention to this idiom.</p> <p>Researcher: It is used to describe the action of knowing the up-to-date information.</p> <p>K: That is what it means? I thought it was keep tabs on. They look similar.</p> <p>Research: Well, they are actually quite different. Keep tabs on means watch carefully. Keep abreast of means updated.</p> <p>K: I see.</p>	<p>Researcher: How do you define <i>keep abreast of</i>?</p> <p>O: Keep abreast of?</p> <p>Hmm...familiar with something, or, or focus on the main part?</p> <p>Researcher: It means up-to-date.</p> <p>O: Really? I remembered discussing this idiom with my partner, and her explanation appeared to be something different. I did not know the word <i>abreast</i>, so it was hard for me to fully understand its meaning.</p> <p>Researcher: Why not use the context?</p> <p>O: I did. I could tell it was related to knowing about the information, but the meaning of up-to-date was not that obvious to me.</p>
Short-term delayed posttest (Definition- supply) Week 13	<i>Knowing the updated information</i>	<i>Staying up with the latest news, knowing what is going on recently</i>
Long-term delayed posttest Week 16	I know this word. It means <i>staying updated</i> .	I know this word. It means <i>keep the most important part</i>

between in the pretest. During their collaboration in the completion of the idiom-in-context task, they employed background knowledge and contextual clues to figure out its correct meaning, allowing them to provide the accurate definition on the immediate posttest and apply the co-constructed knowledge to identify and correct its improper use

in the text-reconstruction task. The collaborative understanding they had reached within their IFD episodes was also internalized individually and manifested through their oral (during stimulated recalls) and written responses (on short-term and long-term delayed posttests) to the meaning of this target idiom (see Table 18 for a complete description). L and P, likewise, achieved and maintained their target idiom knowledge growth through collaborative efforts. At the onset, L had no previous knowledge about the target idiom *off the wall*, while P resorted to its literal meaning for his comprehension. The collaborative interaction during the idioms-in-context task enabled both of them to gain a clearer picture of its metaphorical meaning, which was subsequently transferred to their successful performance on the immediate posttest and in the text-reconstruction task. Their reflections during the stimulated recalls, along with the definitions they had provided and the sentences they had created on the delayed posttests, further confirmed their good grasp of the meaning (see Table 19 for more details).

For dyads with low scores, the microgenetic analysis revealed quite varied developmental paths. In the case of C and G, although initially neither of them was knowledgeable about the target idiom “take at face value”, C was seemingly more capable than G of guessing its meaning from the context, and thereby building target idiom knowledge through the IFD episode. This was confirmed by her correct and G’s incorrect answers on the immediate posttests, and her fast and accurate performance in the text-reconstruction task. Compared with G, she was also more precise in recalling the meaning during the stimulated recall and providing the proper definition on the delayed posttests. Overall, throughout the entire learning process, the more active role that C had played in knowledge building and problem solving within the IFD episodes seemed to

offer him a comparative advantage in terms of target idiom knowledge growth (see Table 20 for a complete description). For K and O, it appeared that the unresolved IFD episode during the completion of the idioms-in-context task resulted in the incorrect definitions they had supplied to the target idiom *keep abreast of* on the immediate posttest. Their misinterpretations of it were further demonstrated in their failure to correct the error in the text-reconstruction task and inability to articulate its meaning during the stimulated recalls. Although the teacher intervention in the stimulated recall seemed to facilitate K's comprehension and retention, as evidenced in her appropriate responses on the short- and long-term delayed posttests, O was only able to achieve short-term retention due to his incorrect answer on the long-term delayed posttest (see Table 21 for more details). In a nutshell, the unresolved IFD episode appeared to contribute very little to K and O's co-construction of accurate target idiom knowledge, as well as their short- and long-term internalization.

4.4.3. Section summary

This section answered research question four concerning the characteristics of online collaborative interaction that dyads with high and low scores exhibited and their connection to the participants' learning and retaining of target idiom knowledge. Evidence from posttest scores and responses, chat transcripts, and stimulated recalls showed that IFD episodes produced by dyads with high scores were in general resolved, complex in nature, and manifested the participants' cognitive processing of the target idioms, while the ones produced by dyads with low scores were by and large unresolved, simple in nature, and inadequate for discerning the participants' cognitive activities. In addition, these differences in characteristics seemed to be connected with dyad members'

learning and internalizing of the definitions of the target idioms. Specifically, while the IFD episodes produced by dyads with high scores for the most part played a positive role in reinforcing the comprehension and retention of target idiom knowledge, the ones generated by dyads with low scores tended to allow one dyad member to benefit more, or lead to the internalization of incorrect meaning.

4.5. RQ5: Participants' Perspectives on the English Idiom Learning Tasks, Their SCMC-Based Collaborative Interaction, and the Effectiveness of IFD Episodes for Target English Idiom Learning

The fifth research question explored the participants' perspectives concerning the English idiom learning tasks, their collaborative interaction during online chat, and the usefulness of IFD episodes for the learning of target English idioms. To accurately measure participant attitudes and perceptions, I coded and analyzed data collected from 1) the researcher-developed 6-point Likert scale survey that elicited their experiences and feelings about the task-based online collaborative interaction, 2) additional comments and suggestions provided regarding peer-peer electronic collaboration in their responses to the six follow-up interview questions, and 3) their further thoughts recorded in the reflective journals. Through the analysis of these three types of data, the participants' views and opinions of the tasks, real-time discussions, and target idiom learning were more clearly revealed.

A glimpse of the survey responses, interview transcripts, and reflective journal entries suggested the participants' generally positive perceptions about SCMC-based collaborative interaction. Furthermore, the comments made by the participants during the follow-up interviews demonstrated the co-occurrence of collaborative dialogue and

private speech within the online chat environment. In the follow section, I will first present and discuss the results of the survey. After that, I will elaborate on the participants' attitudes toward the appropriateness of the English idiom learning tasks, and their beliefs about the effectiveness of IFD episodes for their target idiom knowledge growth on the basis of their interview responses and reflective journals.

4.5.1. General impression of task-based online collaborative interaction: survey results

The results of the survey indicated the favorable attitudes that the majority of the participants held towards task-based online collaborative interaction. As shown in Table 22 and Table 23, although most of them admitted the considerable time and effort it took them to complete the tasks (see statement #10), they also found the discussion around the target idioms to be appealing and interesting (see statement #15) since it allowed them to solve L2 problems independently while gaining support from their peers (see statement #1). In the case of their attitudes toward SCMC-based collaborative interaction, over eight five percent of the participants indicated that they enjoyed collaborating with their partners through online chat (see statement #7) and felt comfortable and confident about expressing or communicating their ideas within a SCMC environment (see statement #8 & #9). They also showed a strong preference for collaborative over individual work, and text-based exchanges rather than face-to-face communications in terms of their effectiveness in deciphering the meaning of the target idioms (see statement #6 & #12). As far as the usefulness of IFD episodes for gaining target idiom knowledge was concerned, around 90 percent of the participants agreed that the online collaborative interaction had improved the precision and efficiency of their performance on the tasks

Table 22. Descriptive statistics of the participants' responses to the survey questions (N=16)

Survey Questions	Mean	Std. Dev.
1. I enjoyed working with a partner on the meaning of the English idioms.	5.14	1.10
2. Working with a partner helped me guess the meaning and correct the errors of the idioms faster.	4.93	1.14
3. Working with a partner helped me guess the meaning and correct the errors of the idioms more correctly.	5.00	0.96
4. Discussions with my partner about the idioms helped me understand their meaning.	4.93	1.27
5. Discussions with my partner about the idioms helped me remember their meaning.	4.93	0.92
6. Working with a partner on the meaning of the idioms was more effective than working on my own.	4.93	1.27
7. I enjoyed chatting with my partner online about the meaning of the idioms.	4.93	1.33
8. I felt confident chatting with my partner online about the meaning of the idioms.	5.00	1.24
9. I felt comfortable explaining what I knew about the idioms to my partner in online chat.	4.86	1.10
10. Guessing the meaning of the idioms from the context and correcting the errors was challenging for me.	4.07	1.33
11. I was concerned that my partner's explanations might be incorrect.	4.21	0.70
12. My communication with my partner was more effective in online chat than in face-to-face communication.	4.36	1.39
13. While I was answering the questions on the tests, I thought about the meaning of the idioms that I had discussed with my partner.	4.43	1.34
14. It was easier for me to notice the idioms when I was chatting online with my partner.	4.93	1.07

Table 22. Continued

Survey Questions	Mean	Std. Dev.
15. I found the English idiom learning tasks quite interesting.	4.29	1.07
16. In completing the English idiom learning tasks, I gained a lot of knowledge about the meaning of the idioms.	4.93	1.21

**Note:* Strongly Disagree = 1; Disagree = 2; Slightly Disagree = 3; Slightly Agree = 4; Agree = 5; Strongly Agree = 6.

(see statement #2 & #3), and had increased their comprehension and retention of the definitions of the target idioms (see statement #4 & #5). In addition, despite some participants' doubts about the correctness of their partners' thoughts and opinions (see statement #11), most of them were quite positive about the co-constructed target idiom knowledge within IFD excerpts and the consequent promotion of their noticing of L2 forms (see statement #14). Finally, their responses suggested the facilitative role of IFD excerpts in internalizing their discussions (see statement #13) and enhancing their overall idiom learning.

4.5.2. Perceptions of the appropriateness of the English idiom learning tasks

During the follow-up interviews, the participants offered specific details regarding the appropriateness of the English idiom learning tasks. Specifically, 14 out of the 16 participants (87.5%) conveyed a positive attitude toward the English idiom learning tasks, and mentioned that the COCA excerpts closely resembled the academic texts they had encountered in college textbooks and classroom lectures, and thus a full understanding of the meaning, form, and use of the target idioms was relevant to their learning needs. One of the participants, M, for instance, made the following comments.

Table 23. Frequency counts and percentages of survey responses (N=16)

Survey Questions	Strongly Disagree & Disagree		Slightly Disagree		Slightly Agree		Strongly Agree & Agree	
	FCs	%	FCs	%	FCs	%	FCs	%
1. I enjoyed working with a partner on the meaning of the English idioms.	1	6.25%	1	6.25%	2	12.5%	12	75%
2. Working with a partner helped me guess the meaning and find the errors of the idioms faster.	0	0	2	12.5%	3	18.75%	11	68.75%
3. Working with a partner helped me guess the meaning and find the errors of the idioms more correctly.	0	0	1	6.25%	3	18.75%	12	75%
4. Discussions with my partner about the idioms helped me understand their meaning.	1	6.25%	0	0	2	12.5%	13	81.25%
5. Discussions with my partner about the idioms helped me remember their meaning.	0	0	1	6.25%	3	18.75%	12	75%
6. Working with a partner on the meaning of the idioms was more effective than working on my own.	1	6.25%	1	6.25%	2	12.5%	12	75%
7. I enjoyed chatting with my partner online about the meaning of the idioms.	1	6.25%	1	6.25%	3	18.75%	11	68.75%
8. I felt confident chatting with my partner online about the meaning of the idioms.	1	6.25%	0	0	4	25%	11	68.75%
9. I felt comfortable explaining what I knew	1	6.25%	0	0	3	18.75%	12	75%

Table 23. Continued

Survey Questions	Strongly Disagree & Disagree		Slightly Disagree		Slightly Agree		Strongly Agree & Agree	
	FCs	%	FCs	%	FCs	%	FCs	%
about the idioms to my partner in online chat.								
10. Guessing the meaning of the idioms from the context and correcting the errors was challenging for me.	3	18.75%	1	6.25%	3	18.75%	9	56.25%
11. I was concerned that my partner's explanations might be incorrect.	0	0	2	12.5%	7	43.75%	7	43.75%
12. My communication with my partner was more effective in online chat than in face-to-face communication.	1	6.25%	4	25%	2	12.5%	9	56.25%
13. While I was answering the questions on the tests, I thought about the meaning of the idioms that I had discussed with my partner.	1	6.25%	2	12.5%	5	31.25%	8	50%
14. It was easier for me to notice the idioms when I was chatting online with my partner.	1	6.25%	1	6.25%	2	12.5%	12	75%
15. I found the English idiom learning tasks quite interesting.	2	12.5%	0	0	4	25%	10	62.5%
16. In completing the English idiom learning tasks, I gained a lot of knowledge about the meaning of the idioms.	1	6.25%	1	6.25%	1	6.25%	13	81.25%
Total	15	5.98%	18	7.03%	49	19.14%	174	67.97%

Excerpt 48: M's follow-up interview response

Idioms appear everywhere. It is actually very hard to avoid them because they are so common in academic speech. For example, I heard *go off on a tangent* several times in my engineering professor's lectures, and I did not realize he was about to change the topic until I figured out the meaning of this idiom with my partner. It seemed almost impossible to react immediately and make adjustments if I did not know its exact definition and function. So I think idioms do play a crucial role in my communication with native speakers, and having a good knowledge of them can help me process the lectures more easily.

Eight participants further associated the academic values of the English idiom learning tasks with the ample opportunities they had offered for the use of English for communication. According to them, while the open-ended questions in the idioms-in-context tasks encouraged debate and exchange of ideas, the error correction questions in the text-reconstruction tasks required a decision-making process in which the two members of the dyad engaged in syntactic and lexical negotiations to converge on a solution. G's reflective journal, for example, documented how he had benefited from both types of collaborative interaction:

Excerpt 49: G's reflective journal entry

I think the goals for the tasks are to let international students improve their English skills and know more about American culture. In my opinion, learning idioms not only helps us master the English language, but also improves our communication abilities. When we were guessing the idioms, we analyzed the context and compared our answers. I tended to make compromises with my partner since there were no right or wrong answers. When we were correcting the errors, we were more defensive because we wanted to convince each other. For both tasks, we used English to read, to write, to think, and to negotiate. It was a very beneficial experience because we practiced the language we learned in a meaningful way.

Another aspect of the task appropriateness that the participants frequently mentioned was the learning of the target idioms through the use of contextual information. In particular, ten participants confirmed the suitability of drawing on the lexical and semantic cues for the decoding and interpretation of the definitions. As one participant, K, noted, “In my opinion, idioms are embedded in context and the best way of learning them is to see how they are used in authentic, real-life situations. Through the completion of the English idiom learning tasks, I was aware of the fact that the meaning of the idioms were deeply rooted in the context, and with the assistance of contextual clues, I could understand their definitions more strategically. This experience was quite valuable for my future success in deciphering unfamiliar idioms.”

Two (12.5%) of the participants, L and O, however, seemed to be less positive about the appropriateness of the English idiom learning tasks. As L noted, “I don’t think idioms are that important compared with other academic words. I know they are the most frequent ones in academic discourse, but we have other priorities in our learning, and idioms are just not one of them.” O, likewise, stated the following in his interview response:

Excerpt 50: O’s follow-up interview response

Idioms are kind of old-fashioned. My American classmates don’t say them very often, and professors, hmm, I think they will use other alternatives when the audience includes international students. Also I don’t think a lack of knowledge about idioms will really impede my understanding of course content. After all, using the context to guess their meaning seemed to be much more fun and exciting than rote learning. To me, idioms are just a plus. Incorporating them into my writing and speaking would definitely make my English more native-like, but if I were given the choice, I would rather focus more on other more useful vocabulary items.

4.5.3. Perceptions of SCMC-based collaborative interaction

When asked about their opinions of SCMC-based collaborative interaction, thirteen out of sixteen (81.25%) participants reported positive attitudes toward their experiences in online chat. They mentioned that text-based communication ensured the clarity and accuracy of the message because compared with face-to-face interaction, the written mode allowed them to recall the specific details of the discussions more easily and retrieve memories more efficiently by referring to the records of chat transcripts. B, for example, made the following comments.

Excerpt 51: B's follow-up interview response

I found out that in online chat I could get my partner's responses more quickly and directly. It was also very hard to ignore her messages because they stayed on the screen for quite a long time. Sometimes when we forgot about the meaning of the idioms that we learned, we looked at the chat history and knew immediately what we had talked about. Through online chat, we could finally understand and memorize the meaning of all those idioms. However, if my partner were disconnected to the chat room, I had to wait until she was reconnected to the network. It was the only disadvantage of online chat while we were using it for collaboration.

Echoing B, another participant, C, elaborated on his thoughts about the advantages of using online chat for peer-peer collaboration:

Excerpt 52: C's follow-up interview response

The experience I had from online chatting with my partner, G, was quite enlightening. Since we were not sitting next to each other, the only way we were able to interact with each other was through online chat. I was not used to this at first, but soon I understood the reason behind it. For example, during our chat, we managed to use English to explain the idioms instead of our native language, Chinese. This was a big achievement for me because we just could not help using Chinese for our discussions in class. Also I had the

feeling that our discussions were more in-depth and on target because we needed to think really carefully before typing out our thoughts. We also had the drive to work on our grammar issues because they were so visible and embarrassing. Looking back now, I think online chat enabled us to produce better answers than we would do if we had collaborated face to face.

Two participants, A and I, also made the claim that SCMC-based collaborative interaction was of merit in improving their writing abilities. As I noted, “To know how to say something is different from to put it into words. We speak English everyday with our friends and classmates, but we do not spend a lot of time on writing. Online chat offered us a great opportunity to practice writing in English. We learned how to write more quickly and concisely because we had to finish the idiom tasks within the time limit.” Furthermore, seven participants also mentioned the open and supportive environment that online chat had created for their collaboration on the target idioms. They stated that in face-to-face communication if they did not fully understand their partners, they usually chose not to provide any direct or indirect feedback since they were concerned about interrupting the flow of conversation. However, the written mode of online chat enabled them to feel less face-threatening to resolve misunderstandings and challenge the viewpoints they did not agree with. One participant, L, particularly described how SCMC-based collaborative interaction had promoted her engagement in negotiations with her partner.

Excerpt 53: L’s follow-up interview response

It was actually the first time I chatted with someone in English, and it was totally different from face-to-face talk. I think exchanging messages on the computer screen was a good way of communication. For example, I might be afraid of asking questions of my classmates directly, but in online chat I did not have this kind of problem. I did not feel

stressful when correcting my partner's errors or shy away from disagreement and confrontation. Without paying too much attention to my partner's reactions, I could completely concentrate on the tasks and the quality of our discussions.

In contrast with these positive comments on SCMC-based collaborative interaction, three (18.75%) participants, H, J and N, expressed somewhat negative attitudes toward their chat exchanges. H, for example, was dissatisfied with the technical issues he had struggled with, and he stated this idea in his reflective journal.

Excerpt 54: H's reflective journal entry

Even though nowadays we have easy and convenient access to online chat, honestly, I don't like the idea of using online chat for discussing idioms. The first reason is the interface. The letters were small compared to the huge blank space, so it was hard to read the messages clearly. Second, there was no reminder to let me know that my partner has sent me a message. Third, message delays are a real nuisance. Sometimes I spent three or four minutes waiting for my partners' responses but still did not receive any messages from her. Last, it was not uncommon that I misinterpreted what my partner had said because of the order of our messages. For example, one time my partner said, "I agree." I thought it was her reply to my answer for question 4. It turned out what she actually meant was questions 2. Besides, all the messages we types in appeared simultaneously on the screen, so I always had to carefully differentiate her messages from mine. This was fairly distracting and strenuous, and I think it was a waste of time.

Similar to H, J made the point the technical aspects of online chat, especially the relatively long time lag, made the communication between her and her partner less natural. The fact that she needed to respond to the messages rapidly and frequently in order to keep pace with her partner also detracted from her performance on the tasks at hand. N added that the fragmented sentences and spelling errors during online exchanges often took him extra time and mental effort to process. He also emphasized that he and

his partner's different expressions in English due to cultural or L1 differences occasionally led to confusion and further negotiations, which in turn slowed down their pair work. As he remarked in his interview response, "Some of the words and phrases my partner used for her discussions were not self-explanatory and difficult for me to understand. It was frustrating because I think mutual comprehension is the guarantee for good collaboration and excellent work."

4.5.4. Perceptions of the effectiveness of IFD episodes for target idiom knowledge development

In responding to the interview questions that elicited their perceptions of the effectiveness of IFD episodes for target idiom knowledge growth, 12 out of 16 (75%) participants endorsed the positive role of SCMC-based collaborative dialogue in facilitating their comprehension and retention of the meaning of the target idioms. Among them, seven particularly stressed the benefits of IFD episodes for the promotion of noticing the gap. The participant, D, for example, in her reflective journal, made the following comments about how the collaborative work had drawn her attention to the holes in her L2 knowledge.

Excerpt 55: D's reflective journal entry

Learning idioms with a partner was a new and rewarding experience for me. I enjoyed our collaboration a lot because I could maintain my interest in searching for the meaning of the idioms by chatting with my partner. If I had done this alone, I might have felt bored easily and stopped learning quickly. When we were working on an idiom, we figured out the meaning of it by guessing from the context instead of looking it up in the dictionary. I found that sometimes I did not know how to use the proper words and sentences to express my ideas, but my partner was able to write out what I intended to say. Through this collaboration, I understood more clearly the weakness of my vocabulary knowledge and academic communication skills.

Another participant, B, elaborated on how the collaborative interaction he had engaged in had increased his noticing of the formal aspects of the target idioms. In his response to the interview questions, he emphatically stated the following,

Excerpt 56: B's follow-up interview response

During our discussions, I read the COCA excerpts and typed in the target idioms on the computer screen, which helped me gain greater familiarity with their written forms. Additionally, my partner often reinforced my impression of the constituent components of the target idioms by correcting my misspellings and typos. For instance, during the idioms-in-context tasks, I did not pay much attention to the idiom *go off on a tangent* and sent “go on a tangent” to my partner. She then asked me in her reply about the missing adverb “off” and prompted me to think further about its connection to the meaning of this idiom as a whole. Later on in the test, when I saw *go off on a tangent*, this exchange quickly popped into my head and helped me recall its correct definition.

In addition to the facilitation of noticing in a unidirectional manner as mentioned above, five participants also described the reciprocal reinforcement of noticing, which occurred when the two members of the dyad prompted each other to attend to the formal properties of the target idioms. Specifically the participant, L, provided a detailed account of the positive effects that this collective focus on form within IFD episodes had on her comprehension and retention of the target idioms.

Excerpt 57: L's follow-up interview response

The best part of collaborating with my partner was that we could help each other out by making the most of our specialties. I felt P was better than me at getting the figurative meaning of the target idioms, and I was more capable than him of using the correct grammatical forms. I was quite insensitive to the context and relied almost exclusively on the literal meaning of the idioms for my guesses. P was able to spot errors in my answers and explained to me what he thought might be the contextually appropriate meaning.

After the completion of the idioms-in-context tasks, I came to realize that idioms are not just normal verb phrases but are the lexical items with deeper, metaphorical meaning. On the other hand, in collaborating on the text-reconstruction tasks, I made suggestions to him about the changes to the verb forms, and he messaged me back to say that he should focus more on the correctness of grammar. Like learning other English words, full mastery of the target idioms requires attention to many aspects, including their definitions, grammar rules, and functions, and our partners' opinions are always a good complement to our own understanding of them.

In contrast to the positive attitudes toward the effectiveness of IFD episodes for target idiom knowledge development, four (25%) participants, C, K, N, O, made negative comments on their learning of the target idioms through discussions with their partners. C, for example, complained about the distractions that online collaboration had caused during her completion of the English idiom learning tasks. As she remarked, "The more time I spent on thinking about the meaning of the idioms, the less time I had for chatting with my partner, and vice versa. Balancing individual work and collaboration just seemed overwhelming and burdensome to me." K and N expressed their uncertainty about trusting their partners' interpretations of the target idioms. K, for example, mentioned that, "I did appreciate O's provision of opinions; however, he did not give many thoughts to his answers. Some of his guesses were apparently groundless and incorrect, which was a waste of time on the part of both parties." N added that, "I do not think my partner knew English idioms better than I did, but I was not an expert either. If our answers did not match, I usually took her suggestions because she could always convince me. When I found out my answers were accurate but hers were not after we were provided the correct definitions, I was quite disappointed that I was so easily influenced by others' opinions." O, in a similar vein, expressed her dissatisfaction with the collaborative experience he

had undergone. As he noted, “In real-life situations we often cannot find a partner to discuss the meaning of unfamiliar idioms. Instead of learning them through online chat, I prefer to resort to other more accessible technologies such as online dictionaries for their definitions. In so doing, we have more autonomy and more control of our learning.”

An additional finding of particular interest was the co-occurrence of collaborative dialogue and private speech during online exchanges. As six of the participants mentioned, in working on the meaning of the target idioms with their partners, they became more conscious and also more critical of the errors that their partners had made in their messages, which in turn allowed them to reflect on the proper use of the English language and be more careful about their own grammatical and lexical choices. The participant, A, for example, illustrated this point by making the following comments:

Excerpt 58: A’s follow-up interview response

Researcher: Compared with face-to-face communication, what do you think are the strengths and weaknesses of using online chat for the tasks?

A: I think in face-to-face communication, it is more difficult to detect the errors that my partner is making or has made because they are hardly noticeable. For example, if my partner says “I think it mean average” in front of me, I probably will not know instantly that something is wrong. However, if I see this message on the computer screen, I will think to myself immediately, “Hmm...there is a subject verb agreement problem here.” I will spend more time and attention analyzing the errors because I want to understand my partner completely and accurately. This seems quite unlikely in verbal communication because I don’t have enough time and energy to process the errors.

Researcher: What about your own utterances? Were you more careful to avoid the errors in your messages?

A: Absolutely! Every time I saw something weird in my messages, I kept thinking, “Did I use the correct words? Was my grammar OK? What is the proper way of saying this?”

Being able to see the sentences I was producing and edit them really pushed me to reflect further on the correct use of English.

In the above interview excerpt, it was clear that during SCMC-based collaborative interaction, A made use of private speech, which is “directed by the self as speaker to the self as listener” (DiCamilla & Anton, 2004, p. 39) to regulate his thoughts on the accuracy of linguistic forms. It therefore seems that online chat mediated L2 learning by bridging collaborative dialogue and private speech, and the participants’ engagement in their IFD episodes around the target idioms appeared to foster the emergence of private speech.

4.5.5. Section summary

This section provided answers to research question four concerning the participants’ perceptions of the English idiom learning tasks, SCMC-based collaborative interaction, and the effectiveness of IFD episodes for the development of target idiom knowledge. Analysis of survey responses, follow-up interview transcripts, and reflective journals revealed the participants’ overwhelmingly positive attitudes toward their online synchronous interaction. Specifically, the majority of the participants thought the English idiom learning tasks were appropriate for addressing their academic needs, engaging them in the exchange of ideas and negotiations of L2 forms, and the use of English for communication. They also had a generally positive experience with SCMC-based collaborative interaction, suggesting its usefulness in ensuring a high degree of collaboration with their peers and improving the clarity and accuracy of their communication. Additionally, most of the participants were highly supportive of the effectiveness of IFD episodes for the development of their target idiom knowledge. The

most frequently mentioned benefits of IFD episodes for the comprehension and retention of the definitions of the target idioms included the promotion of noticing the gap in their existing knowledge of the target idioms and increased attention to their form, meaning, and use through discussions with their partners. Despite some negative comments made about the tasks, online chat, and collaboration on the deciphering of the meaning, it appeared that in general the participants were quite satisfied with the process and product of their English idiom learning.

4.6. Chapter Summary

This chapter presented and discussed the results of the current study. Both quantitative measures in the form of descriptive statistics and qualitative analysis based on excerpts of chat transcripts, stimulated recall comments, reflective journal entries, and interview responses were used to provide answers for the five research questions. For the first research question concerning the patterns of interaction that emerged during online exchanges, the four patterns of interaction that the participants had engaged in during the completion of the English idiom learning tasks, along with the variation of the patterns in terms of the nature of the tasks, were revealed and explained. For the second research question regarding the utilization of communication strategies during SCMC-based collaborative interaction, the five categories of communication strategies that the participants had employed for their discussions of the meaning of the target idioms were listed and described. For the third research question on the provision of scaffolded assistance in the deciphering of the target idioms, a rich and detailed account of the six types of scaffolded assistance that the participants had offered to each other for aiding in the interpretations of the meaning was provided. For the fourth research question that

explored the characteristics of collaborative interaction that dyads with high and low scores exhibited, both the participants' performance on the posttests and the microgenetic change in their comprehension and retention of the target idioms were examined. For the fifth research question focusing on the participants' perspectives on the English idiom learning tasks, SCMC-based collaborative interaction, and the effectiveness of IFD episodes for the development of target idiom knowledge, both their positive and negative attitudes reflected in the survey results, follow-up interview responses, and reflective journal entries were introduced. The next chapter concludes the current study by summarizing the main findings and elaborating on how they fill the gap in existing research on collaborative dialogue. It also suggests the theoretical and pedagogical implications of the current study, discusses its limitations, and offers directions for future research.

CHAPTER 5. CONCLUSION

In this study, I drew on Vygotskian sociocultural theory of mind (Vygotsky, 1978, 1987) and sociocultural SLA (Lantolf, 2000; Lantolf & Thorne, 2006) to investigate the operationalization of the construct of peer-peer collaborative dialogue (Swain et al., 2002) during task-based online text chat exchanges. Particularly, in light of the concept of *linguaging* (Swain, 2006), I examined instances of SCMC-based collaborative dialogue around English idioms frequently employed in academic discourse, notably Idiom-Focused-Dialogue (IFD) episodes, and their contributions to the development of target idiom knowledge. In addition, I obtained data on ESL learners' perceptions of and attitudes toward the tasks, SCMC-based collaborative interaction, and the effectiveness of IFD episodes for their target idiom knowledge growth. Sixteen participants who were intermediate ESL learners were recruited to participate in the current study. The data I analyzed were their chat transcripts produced during the completion of the idioms-in-context and text-reconstruction tasks, stimulated recall comments, reflective journal entries, as well as survey and follow-up interview responses. Both quantitative and qualitative methods were included in the data analysis to give an accurate and comprehensive picture of the nature and influence of SCMC-based collaborative dialogue. Findings of this study filled the gap in the extant literature by revealing the patterns of interaction that emerged within a SCMC environment, the utilization of communication strategies and the provision of scaffolded assistance during peer-peer collaboration on academic tasks, as well as ESL learners' perspectives on their real-time, collaborative interaction experiences. Results of this study also shed light on ESL learners' cognitive processing of English idioms as formulaic language.

In the following sections, I first summarize the main findings for each of the research questions in the study. Then I elaborate on the theoretical and practical implications of this study. Finally, I conclude this chapter by presenting the limitations of the current study and offering recommendations for future research.

5.1. Summary of Main Findings

This section provides a summary of the results of this study. First, the patterns of interaction that the participants engaged in during their collaborative work on the meaning of the target idioms are described (research question 1). Second, the communication strategies that the participants utilized for maintaining and managing their SCMC-based collaborative interaction are outlined (research question 2). Third, instances of scaffolded assistance that the participants provided to each other for deciphering the meaning of the target idioms are presented (research question 3). Fourth, the characteristics of collaborative interaction that dyads with high and low posttest scores exhibited are identified (research question 4). Finally, the participants' perspectives on the English idiom learning tasks, their SCMC-based collaborative interaction, and the effectiveness of IFD episodes for target idiom knowledge growth are introduced (research question 5).

For the first research question concerning the patterns of interaction that emerged from the participants' online discussions about the meaning of the target idioms, analysis of the chat transcripts, complemented by stimulated recall comments and reflective journals, revealed the presence of the four patterns of interaction that had been documented in previous research on face-to-face communication (e.g., Storch, 2002), notably collaborative, expert/novice, dominant/dominant/ and dominant/passive. Dyads

were identified as exhibiting the collaborative pattern if they were high on equality and moderate and high on mutuality. These patterns were evident when the members of the dyad were able to make approximately equal contributions to the solutions to the tasks, exchange ideas and share opinions constantly, and converge on the meaning of the bulk of the target idioms. The expert/novice dyads, on the other hand, were moderate to low on equality and moderate to high on mutuality, as seen when the more capable dyad member (the expert) took more control over the discussions, and encouraged and assisted in the less capable one's (the novice) participation. Both collaborative and expert/novice were the collaborative orientations that resulted in more words and turns produced during online exchanges and more time spent on the tasks. In contrast, dyads that adopted the dominant/dominant pattern were high on equality and moderate to low on mutuality. This was evident by the inadequacy of involvement with each other's views, lack of compromises, and inability to reach consensus on the meaning of most idioms. The dominant/passive pattern, furthermore, was characterized by the paucity of negotiations, the dominance of one dyad member who appropriated the tasks and imposed his or her opinions, and the submission of the other one who barely expressed his or her thoughts. Both dominant/dominant and dominant/passive were the non-collaborative orientations, which produced fewer words and turns and spent less time on the tasks. An additional finding of particular interest is the influence of the nature of the tasks and the increase in the dyad members' knowledge of the meaning of the target idioms on the patterns of interaction they engaged in.

For the second research question examining the utilization of communication strategies for the management and maintenance of SCMC-based collaborative interaction,

analysis of the chat transcripts, stimulated recall comments, and reflective journal entries suggested the existence of five categories of communication strategies: 1) requests for and provision of assistance, 2) continuers and co-constructions, 3) off-task discussion, 4) self- and other-initiated correction, as well as 5) strategies used in combination. Among these five categories, continuers and co-constructions constituted the vast majority of the communication strategies employed by the participants for coming up with the definitions of the target idioms that were acceptable to both parties and arriving at agreed solutions to their proper use in new contexts. The second most widely used strategy was requests for and provision of assistance, through which the participants offered and received suggestions regarding task completion, the content or conduct of the online exchanges, and technical issues. Off-task discussion, self- and other-initiated correction, and strategies used in combination occurred relatively less frequently, and they were used for building rapport, ensuring mutual understanding, encouraging participation, and facilitating a smoother interaction between dyad members. In utilizing these five categories of communication strategies, the participants were able to orchestrate the flow of their online discussions and more effectively engage in the practice of being socialized into the academic discourse.

For the third research question regarding the provision of scaffolded assistance that facilitated accurate interpretation of the target idioms, evidence based on excerpts from the chat transcripts, stimulated recall comments, and reflective journal entries posted by the participants indicated the occurrence of six types of peer-peer scaffolding: 1) guessing from context, 2) discussing and analyzing the idiom, 3) using the literal meaning, 4) using background knowledge, 5) repeating or paraphrasing the idiom, and 6)

referring to L1 idioms. Guessing from context was the type of collective scaffolding most frequently employed by the participants, and it enabled the two members of the dyad to make inferences about the definitions through the use of semantic or lexical cues in the COCA excerpts. The other five types of scaffolding were comparatively less frequently exploited, and their use was often combined with the reference to the contextual information. In offering each other these six types of scaffolded assistance, the participants managed to understand the linkage between the literal and figurative meaning, pool their linguistic resources, and thus co-construct their knowledge about the target idioms.

Research question four inquired about the characteristics of SCMC-based collaborative interaction that dyads with high and low posttest scores exhibited, and the connection of these characteristics to their learning and retaining of target idiom knowledge. Answers to this question lay in the analysis of pre and posttest scores, and excerpts from the focal participants' chat transcripts. It was clear that in general the IFD episodes that dyads with high posttest scores had produced were resolved, complex in nature, and indicative of their cognitive processing of the target idioms, whereas the ones that dyads with low posttest scores had generated were basically unresolved, simple, and barely reflected the focal participants' cognitive activities. Additionally, dyads with high posttest scores seemed to be advantageous over dyads with low posttest scores in terms of their comprehension and retention of the definitions. Despite these differences, it appeared that all dyads had developed their knowledge about the meaning through their multiple encounters with the target idioms.

For research question five, the participants' perspectives on the English idiom learning tasks, their SCMC-based collaborative interaction, and the usefulness of IFD episodes for the development of their target idiom knowledge were investigated. Survey results, reflective journal entries, and follow-up interview responses served as the basis for the answer to this question. For the most part, the participants expressed a positive attitude toward the tasks, indicating their relevance to their academic needs and communication skill development. They were also in general quite positive about the use of online chat for collaboration and confirmed its constructive role in promoting mutual understanding and increasing the depth of discussions. Meanwhile, the majority of the participants supported the effectiveness of IFD episodes for their target idiom knowledge growth and suggested the benefits of discussions about the meaning for focus on form and noticing the gap. An additional positive perception was the co-occurrence of collaborative dialogue and private speech during online text chat exchanges.

5.2. Theoretical Implications

Findings of this study have important theoretical implications for research on collaborative dialogue and sociocultural SLA. As mentioned earlier, the current study employed COCA excerpts embedded with English idioms frequently used in academic discourse for eliciting intermediate ESL learners' collaborative dialogue. Through their discussions during text online chat exchanges, the participants guessed from the context and corrected the errors in the meaning of the target idioms. The results of the current study would be particularly useful for deepening the existing knowledge about the concepts of mediation and internalization in sociocultural SLA, the value of preemptive focus on form, and the interplay between L2 socialization and L2 learning.

For the concepts of mediation and internalization, Tocalli-Beller (2005), accounting for the theoretical implications of her doctoral research, discussed ESL learners' growth of lexical knowledge resulting from their collaborative work on English puns and riddles in light of "interaction as social mediation and language as artifact mediation" (p. 186). Similarly in the current study, social mediation was by and large embodied in the IFD episodes produced by the two members of the dyad when working together on the definitions of the target idioms. As the notion of collaborative dialogue suggested, during dialogic interaction, the utterances produced by the speakers evidenced their cognitive processes and became the objects for further reflection. In other words, "dialogue that arises during collaborative problem-solving is an enactment of cognitive activity" (Swain & Lapkin, 1998, p. 322). In the case of this study, in discussing the meaning in relation to the context with their partners, the participants revealed their thoughts about the target idioms and had a better understanding of the status of their interlanguage; that is, what they could and could not express in English at the moment. Additionally, through interactional feedback and negotiation of meaning, the participants were more conscious of the problems in their L2 production. In attempting to improve the precision, clarity, and appropriateness of their messages, they practiced explaining and arguing over the meaning of the target idioms through the use of L2 and therefore expanded their linguistic repertoire. It follows that the development of L2 lexical knowledge can be achieved through not only individual but also collaborative efforts by virtue of *languageing*. This process, furthermore, seems to be facilitated by the written mode of SCMC, in which the participants were allowed to more readily monitor their own language production and detect the problems in their L2 use.

Another aspect of social mediation particularly relevant to the current study includes the positive role of scaffolding in target idiom knowledge development. The data in this study suggested that the provision of scaffolded assistance was not restricted to error correction between native and nonnative speakers (a recent example in this regard can be found in Lee 2008), but was prevalent in peer-peer collaboration on the deciphering of unfamiliar English idioms. Since none of the participants had prior knowledge about the target idioms, it was quite unlikely that one dyad member's expertise would be disproportionate to that of the other one. Nevertheless, each dyad member brought his or her own interpretations of the definitions and the contextual information into the joint problem-solving, which contributed to the emergence of ZPD on the part of both parties. During text chat online exchanges, the two members of the dyad took turns as the expert and the novice learner. This mutual provision of scaffolding led to the "development of task competence by the learner at a pace that would far outstrip his unassisted efforts" (Wood et al., 1976, p. 90). Additionally, in offering and receiving scaffolded assistance, both dyad members consolidated and extended their existing knowledge about the target idioms, which resulted in their success in internalizing co-constructed solutions during collaborative dialogue, as well as achieving satisfactory scores on the posttests.

As far as language as artifact mediation is concerned, the effectiveness of the use of English idioms for the promotion of focus on form and noticing is evident in terms of receptive and productive knowledge in three aspects. First of all, the distance between the literal and figurative meaning enabled the participants to pay more attention to the constituent components of the target idioms, which increased their focus on L2 form.

Second, the presence of the context raised the participants' awareness of processing the target idioms as holistic chunks or formulaic language, and thus pushed them to attend to the form-meaning mappings. Third, in jointly correcting the errors, the participants needed to be attentive to not just the meaning but also the use, including the semantic and syntactic functions, of the target idioms. In obtaining this comprehensive understanding of the target idioms, the participants noticed the gap in their L2 knowledge and allocated their attentional resources to the formal properties while simultaneously decoding the meaning. Being both L2 users and L2 learners, such an increase in noticing and focus on form in turn promoted the development of their higher level cognitive processing, and ultimately led to target idiom knowledge gains.

As to the value of preemptive focus on form, while prior studies on collaborative dialogue focused almost exclusively on instances of reactive focus on form (e.g., Lyster & Ranta, 1997; Oliver, 2000; Williams, 1999), the results of this study suggested the benefits of collaborative dialogue triggered by preselected linguistic forms for the development of L2 abilities. According to Ellis et al. (2001b), "Whereas reactive focus on form involves negotiation and is triggered by something problematic that an interactant has said or written, preemptive focus on form involves the teacher or learner initiating attention to form even though no actual problem in production had arisen" (p. 414). Preemptive (or teacher/student initiated) focus on form is purported to be particularly effective for L2 growth in that it "addresses an actual or a perceived gap in the students' knowledge" (ibid, p. 414), and is intensive and proactive in nature. In the case of the current study, the use of the pretest for assessing the participants' prior knowledge about the meaning of the target idioms helped identify the actual gaps in their interlanguage,

and thus detect more accurately their learning needs. Additionally, in guessing the meaning from the context, correcting the improper use, and providing the definitions in the posttests, the participants had multiple encounters with and intensive exposure to the target idioms, which increased their focus on the preselected L2 forms. Furthermore, in attending to the highlighted target idioms while reading and comprehending the COCA excerpts, the participants' attentional resources were allocated to the linguistic features that were intended by the teacher. Later on, during their collaborative interaction, they initiated discussions with their peers about the target idioms through the exchange of ideas regarding the context and the definitions. This alignment of self-initiated with teacher-initiated focus on form seemed likely to allow the participants to process the target idioms at a deeper level, and as the "levels of processing theory" (Cermak & Craik, 1979; Craik & Lockhart, 1972) suggested, a deeper processing is essential to the metaphorical awareness and learning of English idioms.

A final implication for theory that was observed in the current study concerns the co-existence of L2 socialization and L2 learning in collaborative dialogue. As mentioned earlier, although Swain and her co-researchers linked collaborative dialogue to SLA through Vygotskian sociocultural theory of mind, much of their work seemed to be grounded in quantitative analysis of LREs and thus lacked a more in-depth examination of how L2 is actually used in collaborative dialogue for both communication and learning purposes. This is compounded by the fact that even in the few extant studies concerning collaborative dialogue that adopted a qualitative approach, the focus tended to be solely on language socialization or language learning. The results of the current study showed, however, that during collaborative dialogue around target idioms, language socialization

and language learning in reality co-exist; that is, language socialization facilitated language learning and language learning, in turn, encouraged language socialization. Additionally, the co-occurrence of language socialization and language learning seemed to contribute to the emergence of two types of ZPD: one is for the growth of L2 linguistic knowledge and the other is for the development of L2 communication abilities. In other words, the co-occurrence of L2 socialization and L2 learning not only mediated and promoted the development of the participants' knowledge about the meaning, form, and use of the target idioms, but also their "enculturation into academic discourses and communities" (Zappa-Hollman & Duff, 2015, p. 335).

5.3. Practical Implications

One important practical implication of this study is the use of introspective data, especially the participants' stimulated recall comments, for the analysis of their collaborative interaction. As the results of the current study suggested, the dyads' patterns of interaction, along with their use of communication strategies and provision of scaffolded assistance, were closely associated with their perceptions of and attitudes toward the English idiom learning tasks, pair work, online chat, and linguistic proficiency levels of their partners. In other words, in engaging in collaborative work toward problem solving and knowledge building, the participants acted as "agents interacting with other agents" (Lantolf & Pavlenko, 2001, p. 156), whose L2 production influenced and, at the same time, was influenced by their partners. The analysis of the chat transcripts in relation to the stimulated recall comments therefore is particularly useful for understanding the impact of their inner thoughts and feelings on their languaging in cyberspace and the relationships they formed and maintained with each other on the

nature of collaborative dialogue. In addition, the participants' verbalization of their interpretation of the target idioms during the stimulated recalls indicated what they had learned during and through collaborative interaction, which provided a more comprehensive microgenetic account of the moment-by-moment developmental changes in their target idiom knowledge.

Another important practical implication arising from the findings of this study pertains to the use of COCA excerpts for eliciting collaborative dialogue around the target idioms. As Simpson and Mendis (2003) noted, "Using real speech samples from contexts that learners will be exposed to has distinct advantages over using conventional methods for teaching idioms" (p. 433). In this study, the advantages of drawing on COCA excerpts for teaching and learning English idioms frequently employed in academic speech and writing can be demonstrated in three ways. First of all, the excerpts clearly presented the form and use of the target idioms in authentic contexts, which allowed the participants to gain further insight into their formal and functional variation in real-life situations. Second, the excerpts offered the participants extended stretches of discourse that facilitated their understanding of the definitions in a more meaningful way. Third, the carefully selected excerpts in the English idiom learning tasks were rich in semantic and lexical cues, and thus appeared conducive to the emergence of the participants' ZPD. That is, in deciphering the meaning of the target idioms in light of the contextual clues available to them, the participants exploited their existing knowledge to assist them in the further development of interlanguage. This seemed to be corroborated by the observation from the current study that the participants were able to discern the words and phrases in the excerpts that were vital to the meaning of the target idioms for

their processing and comprehension. As a result, it appeared that the employment of COCA excerpts not only increased the participants' exposure to the syntactic and semantic aspects of the target idioms, but also enhanced their autonomy and creativity in L2 learning.

From a pedagogical point of view, the results of this study demonstrate the relevance of adopting a holistic rather than analytical approach to teaching and learning English idioms that are frequently used in academic discourse. According to Simpson and Mendis (2003), a holistic approach “focuses on learning idioms as chunks, that is, paying attention only to their composite meaning” (p. 432), whereas an analytical approach “teaches the meaning of an idiom by explaining the meaning of its constituent parts” (ibid). They further pointed out that a holistic approach to processing English idioms would be particularly beneficial for L2 learners, for the reason that the conceptual metaphors of a given idiom may not be transparent and it is the way in which native speakers store and retrieve idioms. For the current study, the chat data showed that most of the participants, deciphering the meaning of the target idioms, viewed them as holistic chunks and relied heavily on the contextual information (for example, *run of the mill*, *off the wall*, and *draw a line between*). Additionally, the bulk of the target idioms appeared to lack transparency in conceptual metaphors, which might detract from the effectiveness of the use of an analytical approach. This was compounded by the fact that the analysis of the constituent parts of some of the target idioms even led to the participants' incorrect definitions (for example, *take someone to task*, *rule of thumb*). In light of these findings, it seems plausible to suggest that ESL learners be informed of the importance of interpreting the idioms they encounter in academic speech and writing according to their

composite meaning, and the likelihood of resorting to the constituent parts only when the meaning seems appropriate to and consistent with the context.

An additional implication for practice that can be drawn from this study is that the use of collaborative work can be successful for L2 learning in ESL classrooms. As can be observed from the collaborative interaction in this study, the patterns of interaction that the two members of the dyad had engaged in, particularly the levels of equality and mutuality, appeared to be quite influential as far as the co-construction and internalization of the meaning of the target idioms were concerned. As a consequence, to be able to form the collaborative orientations, it is essential that ESL learners recognize the strengths and contributions that each member brings to peer-peer interaction, as well as the important roles they play in pooling their linguistic resources for the solutions to the L2 problems they encounter. Furthermore, despite the fact that the utilization of communication strategies to a large extent facilitated the participants' socialization into academic discourse and community, it is also true that some of the participants, especially those at relatively low level of English proficiency, may not feel confident or competent to provide feedback and strategies pertinent to their partners' needs. This can be complicated in an online chat environment by the occasional discontinuity between requests for assistance and appropriate responses. It follows that ESL learners should be informed of the importance of the production of clear and coherent discourse to the success of collaborative interaction and task completion, and be provided the kind of instruction that focuses on the content and conduct of the tasks.

Additionally, it is necessary to point out that there seemed to be a paucity of metalanguage and metalinguistic terms used by the participants in their IFD episodes in

the current study. A close examination of the chat transcripts suggested that the discussions about the meaning of the target idioms were largely restricted to the provision of synonyms, and most of the negotiations over syntactic issues involved very little use of grammatical terminology or rules. However, as Fortune's (2005) study on the nature of LREs suggested, the ability to use metalanguage and metalinguistic terms frequently and accurately was indicative of advanced level of English proficiency. According to him, "the use of metalanguage and metalinguistic terms is fundamental in the co-construction of language output and often of knowledge about language as well...in many cases it provides a platform for the negotiation of form without which...it would be extremely difficult for further scaffolding to occur" (p. 36). The participants' limited use of metalanguage and metalinguistic terms in their collaborative dialogue may reflect the insufficient metalinguistic knowledge in their L2 repertoire and their lack of L2 resources to talk about the linguistic structures in the target language. Given that "a thorough examination of peer-peer dialogue is instructive for teachers, researchers, and the learners themselves as a means of understanding how learning is happening, and what is going right or wrong with the process" (Swain et al., 2002, p. 181), it seems advisable to familiarize ESL learners with the available types of metalanguage and metalinguistic terms and provide them ample opportunities to apply them in their LREs. Being more competent *language users*, ESL learners are in a better position to co-construct knowledge about L2 meaning, form, and use during their collaborative interaction.

A final implication relates to the effectiveness of text chat online exchanges for L2 learning. First of all, the written and oral mode of SCMC seemed to promote the equality and mutuality of the two members of the dyad engaging in collaborative

interaction, for the results of the current study showed that the collaborative patterns outnumbered the non-collaborative patterns, and the participants' attitudes toward the use of online chat for peer-peer collaboration and L2 learning were generally positive. Secondly, in reading and typing in the target idioms on the computer screen, along with reflecting on and debating over their meaning in their messages, the participants were provided sufficient time and input to focus on form, process new lexical information, and ultimately store the target idioms in their L2 systems. This process, as Smith (2004) claimed, is beneficial to SLA in that it "enables learners to practice existing knowledge as well as move lexical development forward through a medium that may enhance the salience of linguistic features" (p. 389). Finally, the co-occurrence of collaborative dialogue and private speech within a SCMC environment mediated both social and individual L2 learning, and fostered the transfer of target idiom knowledge from the interpersonal to the intrapersonal level.

5.4. Limitations and Recommendations for Future Studies

Although the findings of this study provide some preliminary data on the operationalization of peer-peer collaborative dialogue within a task-based SCMC environment, there are several limitations that warrant attention when interpreting the results, including the small number of participants and their characteristics, the lack of evidence gathered about the participants' motives and goals during collaborative interaction, the selection of the target idioms, ignorance of the effects of dyad composition on the production of collaborative dialogue, and inadequate analysis of IFD episodes. These limitations, nevertheless, provide the basis for future studies, which will be elaborated below.

The first limitation of the current study relates to the small number of participants. There were only sixteen participants that engaged in the text chat online exchanges, and as such their SCMC-based collaborative dialogue may not be representative of the entire population of ESL learners of interest. In addition, the majority of the participants were at the intermediate level of English proficiency, as determined solely by their self-reported TOEFL or IELTS scores. Furthermore, all of the participants were enrolled in a college-level academic writing class of which the goal was to improve their writing abilities. Finally, throughout the entire study, the participants were instructed to accomplish only two types of English idiom learning tasks in two 80-minute class periods. The fact that the researcher was also the teacher might also refrain the participants expressing negative opinions concerning SCMC-based collaborative interaction in their stimulated recalls, reflective journals, and interviews. These factors restrict the findings of this study to only similar ESL instructional contexts. To increase the generalizability of findings, future studies need to be conducted with a larger number of participants at various English proficiency levels (for example, ESL learners of low and advanced levels of English proficiency) assessed by more rigorous measures. In order to make the results more applicable, future studies should also focus on ESL courses that are targeted at different language skills (for instance, oral communication classes or academic reading courses), students that are not taught by the researcher him or herself, and employ longitudinal studies that consist of more types of tasks (for example, jigsaw and information gap) and longer hours of chat to examine the development of collaborative dialogue and L2 learning over time.

The second limitation concerns the insufficient attention to the impact of the participants' goals and motives on the nature of collaborative dialogue. Although the key constructs in sociocultural SLA, including mediation, ZPD, scaffolding and internalization are quite powerful in interpreting the peer-peer collaboration in the current study, they do not account for the participants' behavior during collaborative interaction in light of how they approach the tasks. Or, to put it differently, "Learners approach tasks with different motives and beliefs that guide their behavior, leading them to set their own goals and to maximize and select some actions over others" (Dobao, 2012, p. 24).

Activity theory (Wertsch, 1985, 1991; Lantolf, 2000), on the other hand, links the participants' performance in an activity with their motives and goals. Storch's (2004) case study on the collaborative interaction among ESL learners, for example, suggested that the specific patterns of interaction that they had adopted were deeply ingrained in their perceived goals and roles in the pair work, and more importantly "how these individual goals interacted" (p. 474). From the chat transcripts and interview responses, I also noticed the effects of the participants' motives and goals on their patterns of collaboration: whereas the goals and motives of the dyads engaging in the collaborative orientations were to pool their linguistic resources to solve linguistic problems and acquire new knowledge, those of the dyads that adopted non-collaborative orientations were to simply fulfill course requirement and complete the tasks. It therefore seems that to reveal the complex nature of peer-peer collaborative interaction, future studies need to incorporate data concerning the participants' goals and motives in the completion of the L2 learning activities they are undertaking into the analysis of the dialogic process in

order to arrive at a more comprehensive and accurate interpretation of the operationalization of collaborative dialogue.

The third limitation of this study pertains to the selection of target idioms. As Cooper's (1999) study showed, English idioms vary in difficulty in terms of the comprehension of their meaning. Therefore, it is quite possible that the two members of the dyad failed to reach consensus on the meaning of certain idioms simply because they were more difficult for the participants. To more precisely measure the extent to which ESL learners are able to solve L2 problems and build English idiom knowledge through collaborative efforts, future studies need to ensure that the idioms employed are at approximately equal levels of difficulty. In addition, as mentioned earlier, ESL learners' success in deciphering the meaning of English idioms is closely related to their understanding of source domains, construction of mental images, degree of metaphorical awareness, and ability to link the literal meaning to the figurative meaning. While these variables were not taken into account in the current study, future studies should include them when examining ESL learners' processing and understanding of English idioms. Finally, the target idioms were embedded in COCA excerpts rich in contextual clues, and the excerpts were all extracted from professional and academic journals. To reveal a more diverse picture of ESL learners' languaging around English idioms, future studies need to explore the ways in which the metaphorical meanings of English idioms are decoded when ESL learners are faced with authentic contexts that offer limited lexical and semantic cues from a wider range of genres and texts (for example, magazines and newspapers).

An additional limitation of the current study is that it did not take into consideration the possible effects of dyad composition on the production of collaborative dialogue. In deciphering the meaning of the target idioms, dyads of matched and mixed gender, as well as the same and different L1s, engaged in the online collaborative interaction. Although this arrangement was close to the dyadic interaction in real-life ESL classroom settings, it ignored the possible influence of gender and L1 on the operationalization of peer-peer collaborative dialogue. Ross-Feldman (2007), for example, found that the presence of a female partner greatly impacted the incidence and resolution of LREs. In particular, both male and female participants in her study benefited more from interacting with a female partner by initiating and resolving in a target manner a greater number of LREs. Since the generation and resolution of LREs are indicative of collaborative L2 learning and also closely related to the level of equality and mutuality, it is possible that the mixed-gender dyads in the current study were at an advantage over matched-gender (especially male-male) dyads in co-constructing and internalizing target idiom knowledge due to the expanded opportunities of L2 learning and the relatively higher level of equality and mutuality involved. This effect was complicated by Bueno-Alastuey's (2013) study suggesting that dyads of the same and different L1s varied in terms of the quantity and type of LREs. In addition, in the current study, all the participants were assumed to be at the same level of English proficiency, whereas their interview responses suggested that some participants might be more proficient than the others. Due to the impact of ESL learners' perceptions of their partners' traits (for example, the partners' L2 proficiency reported in Watanabe & Swain 2008) on the process and outcome of pair work, it seems important that future studies on

the relationships between collaborative dialogue and L2 learning take into consideration the possible influence of dyad or group composition.

As a final limitation, this study limited the analysis of the IFD episodes produced by the participants. In the current study, the outcome of IFD episodes was only investigated on the basis of whether or not the discussions about the target idioms had reached a solution. To gain further insights into the nature of collaborative dialogue, the results of the IFD episodes need to be investigated in relation to whether or not they were correctly solved, incorrectly solved, or unsolved. Furthermore, the current study did not look at the link between the resolutions of IFD episodes and actual L2 learning. In order to determine the contribution of collaborative dialogue to L2 development, future studies need to examine the correlation between the resolutions of IFD episodes with the participants' gain scores on the posttests. Finally, in describing the nature of IFD episodes, the current study only focused on their resolutions and did not take into consideration the other aspects of collaborative dialogue, including the level of explicitness, the distribution of dyad members' contributions, and the initiators of the metatalk. These features of IFD episodes, as a result, need to be incorporated into the analysis of future studies so that a more complete picture of the operationalization of collaborative dialogue in SCMC can be understood.

5.5. Conclusion

Due to the increase used of online chat for L2 learner collaboration in recent years, it is essential to understand how peer-peer collaborative interaction is carried out in real time, its effectiveness for L2 learning, and L2 learners' perspectives on online exchanges. This study addresses this need by examining instances of SCMC-based collaborative

dialogue between ESL learners elicited by English idiom learning tasks. Findings of this study add to the existing body of knowledge regarding the operationalization of collaborative dialogue during task-based SCMC. Specifically, its results revealed the close resemblance in the patterns of interaction that ESL learners engaged in between networked collaborative interaction and face-to-face communication. In addition, the nature of the tasks, ESL learners' perceptions of and attitudes toward the collaboration, and their growth of L2 knowledge also seemed quite influential as far as the way they interact with each other was concerned. Furthermore, this study gives a thorough account of how L2 learning occurs during collaborative dialogue. The data showed that the two members of the dyad utilized a wide array of communication strategies to maintain and manage their interaction in SCMC, which developed their English communication skills and enabled them to more effectively participate in academic discourse and content. Meanwhile, through the discussions of the linguistic properties of the target L2 features, ESL learners provided each other contingent, scaffolded assistance with L2 production. The collective scaffolding in cyberspace contributed to problem solving and knowledge building, as well as the emergence of ZPD that allowed for the transition from other regulation to self-regulation. Drawing on artifact and social mediation, ESL learners internalized the co-constructed L2 knowledge and expanded their interlanguage through microgenetic development. Finally, ESL learners' perspectives on SCMC-based collaborative interaction offered insights into the power and limitation of online chat in promoting peer-peer collaboration and L2 learning. Theoretical and pedagogical implications drawn from the conclusion of this study help to shed light on the

incorporation of peer-peer collaboration into L2 teaching and learning and the choice of methodology for the instruction of multiword units.

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APPENDIX A. PRE-TASK QUESTIONNAIRE

Learning English Idioms through SCMC-Based Collaboration Questionnaire

Instruction: Please answer the following questions. Your answers will let me know about your background, attitude towards collaboration, feelings about text-based online chat, and knowledge of English idioms. Your answers will be kept confidential and will only be viewed by me.

Your name: _____

Your age: _____

Your nationality: _____

Your native language(s): _____

How long have you been in the USA? _____ years _____ months

How long have you been learning English? _____ years _____ months

You major area of study at ISU (if any) _____

What is your TOEFL or IELTS score? _____

What is your experience of learning English vocabulary? Do you think it is difficult?
What strategies do you use to learn vocabulary? (Please write on the blank paper).

Your attitudes toward collaboration

1. I prefer to learn English all by myself rather than with a partner.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

2. I worked a lot with a partner when I was learning English in my home country.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

3. Working with a partner can help me learn English better.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

4. I enjoy working with a partner in ENGL101C class.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

5. I can complete the classroom activities in ENGL101C class more successfully with a partner than all by myself.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

6. I prefer to work with a partner whose English is better than mine.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

7. I prefer to work with a partner who speaks the same native language as I do.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

8. I do not feel nervous or anxious speaking in English with my classmates.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

Your attitudes toward learning English vocabulary through collaboration

9. If I don't know the meaning of a word, I prefer to look it up in a dictionary rather than ask a partner.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

10. My partner's explanations of word meanings are more clear than the definitions given in dictionaries.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

11. Discussions with my partner about new words help me **understand** their meanings better.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

12. Discussions with my partner about new words helps me **remember** their meanings better.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

13. I can learn new words better with a partner than all by myself.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

Your attitudes toward the use of text-based online chat for communication

14. I use text-based online chat a lot for communication.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

15. I feel comfortable and confident using text-based online chat for communication.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

16. I enjoy chatting in English.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

17. If I use text-based online chat to do the classroom activities in ENGL101C class, I can do better than face-to-face discussions.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

18. If I work with a partner who speaks a different native language, text-based online chat can help me with my communication with my partner.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

Your Knowledge Of English Idioms

19. How many English idioms do you know?

A lot some few vey few I don't know any idioms

20. Can you write down two idioms that you know?

21. Learning idioms is important to me.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

22. Learning idioms can help me understand English in **listening and reading** better.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

23. Using English idioms in my **speaking and writing** can make me more like a native speaker.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

24. Idioms are important in my communication with a native speaker.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

25. Idioms are important in my communication with my classmates in ENGL101C class (nonnative speakers).

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

Thank you for your answer!

APPENDIX B. PRETEST

Instruction: This test assesses your knowledge of the English idioms commonly used in academic discourse. Please put a check mark next to the level that corresponds to your familiarity with the meaning of each of the idioms below. If you select level 3 and 4, please provide a synonym or a translation. If you select level 5, please write a sentence that shows how the idiom is used in context.

Note: The selection of idioms is based on Simpson and Mendis (2003) and O’Keefe et al. (2007).

1. Take a stab at	11. Split hairs	21. On target	31. Thumbs up
2. Come into play	12. Off the wall	22. At odds with	32. Rule of thumb
3. Draw a line between	13. Keep tabs on	23. Garden-variety	33. Put the heat on
4. Tune out	14. Take the plunge	24. State of the art	34. Full-fledged
5. Get a grasp of	15. Take to task	25. Bottom line	35. Nitty-gritty
6. Get a handle on	16. Keep abreast of	26. The big picture	36. Out the door
7. Get to the bottom of	17. Take at face value	27. Carrot and stick	37. Flip side of the same coin
8. Go off on a tangent	18. Ring a bell	28. In a nutshell	38. Hand in hand
9. Play the devil’s advocate	19. Lose track of	29. Ivory tower	39. Part and parcel
10. Shift gears	20. Part and parcel of	30. On the same page	40. Chicken-and-egg question

[Idioms]

- _____ 1. I don’t remember having seen this idiom before.
- _____ 2. I have seen this idiom before, but I don’t know what it means.
- _____ 3. I have seen this idiom before, and I think it means _____
(synonym or translation).
- _____ 4. I know this idiom. It means _____ (synonym or translation).
- _____ 5. I can use this idiom in a sentence (write a sentence): _____.
(If you do this section, please also do Section IV)

APPENDIX C. THE SIXTEEN TARGET IDIOMS AND THEIR DEFINITIONS

Definitions were taken and adapted from *Longman Dictionary of Contemporary English Online* (www.ldoceonline.com), *The Free Dictionary* (www.thefreedictionary.com), and *Merriam-Webster Online* (www.merriam-webster.com).

Target Idioms	Definitions
Rule of thumb	a general principle or rule based on experience or practice, as opposed to a scientific calculation
Off-the-wall	strange or different
Keep tabs on	to watch a person or a situation carefully
Take the plunge	to do something important or difficult that you have been thinking about doing for a long time
Take someone to task	to criticize someone angrily for something they have done
Keep abreast of something	to have the most recent information
Shift gears	to start doing something in a different way, especially using more or less energy or effort
Lose track of something/someone	to forget where someone or something is
Come into play	to become important
Draw a line between	to separate or distinguish
Take at face value	to accept someone or something just as it appears; to believe that the way things appear is the way they really are
Part and parcel of	something that cannot be separated from a condition or activity
Run-of-the-mill	common or average; typical
Think on one's feet	to think and react quickly, especially in a situation where things are happening very fast
Put the heat on	to put pressure on someone (to do something); to coerce someone
Go off on a tangent	to suddenly start talking about a different subject

APPENDIX D. IDIOMS-IN-CONTEXT TASKS

Note: Example sentences in idiom-in-context tasks are extracted from the *Corpus of Contemporary American English* (COCA) (Davies, 2008).

Task One

Instruction: You are going to work with your partner on the meanings of eight idioms. Guess the meanings of these idioms using the sentences that illustrate their context. You will also need to provide justifications for the definitions you have come up with. Please use Moodle chat to discuss every idiom in detail with your partner (for example, *which part of the sentence gives you the clue of the meanings of the idioms? Any words you do not know in the sentence but your partner may know?*). I will evaluate your performance on the task according to the quality of your chatting.

1. The army also faces a credibility issue. They promise to hold elections within six months but in a country where the regime could never be **taken at face value**, that's subject to verification.

Take at face value probably means

You and your partner's reason for *Take at face value*

2. There are championships on the line and important games to be won. But there's increasing evidence that players' health may also be on the line. We know that physical collisions are **part and parcel** of the game, but there's new evidence that blows to the head which do not cause concussion may yet have deadly consequences.

Part and parcel probably means

You and your partner's reason for *Part and parcel*

3. This laboratory, by the way, is the laboratory that, that tests commercial samples. And they send their data to the FDA and they work with the FDA on those samples. So it's not some **run-of-the-mill** lab. This is a high-quality lab.

Run-of-the-mill probably means

You and your partner's reason for *Run-of-the-mill*

4. The two components of DI are Instant Challenges and Team Challenges...Instant Challenges encourage children to **think on their feet** and brainstorm, become

comfortable with decision making, and develop a sense of teamwork. The goal of doing Instant Challenges is to find solutions within minutes.

Think on one's feet probably means

You and your partner's reasons for the meaning of *Think on one's feet*

5. "Stand up every so often and swing your arms in a big circle," Hilary advises, "If you tend to **lose track of** time while working, wear a watch with an alarm set to go off every hour to remind you to stretch your fingers, arms, neck and back".

Lose track of probably means

You and your partner's reasons for the meaning of *Lose track of*

6. He's facing a lot of pressure, especially within his own party. A lot of conservatives **put the heat on** him when I was in the outer area of that office a short while ago. There are phones ringing off the hook.

Put the heat on probably means

You and your partner's reasons for the meaning of *Put the heat on*

7. Many cultures don't **draw a line between** serious music and popular music, and when an African drummer is drumming, that is definitely serious, although it's also entertaining. But it's entertaining for me to listen to Beethoven.

Draw a line between probably means

You and your partner's reasons for the meaning of *Draw a line between*

8. "Sometimes, these talk-show hosts, and media, can **go off on a tangent** and it's like a runaway train", Johnson said. "And if it's not going in the right direction, I want to straighten them out. Because misinformation can feed on itself".

Go off on a tangent probably means

You and your partner's reasons for the meaning of *Go off on a tangent*

Task Two

Instruction: You are going to work with your partner on the meanings of eight idioms. Guess the meanings of these idioms using the sentences that illustrate their context. You will also need to provide justifications for the definitions you have come up with. Please use Moodle chat to discuss every idiom in detail with your partner (for example, *which part of the sentence gives you the clue of the meanings of the idioms? Any words you do not know in the sentence but your partner may know?*). I will evaluate your performance on the task according to the quality of your chatting.

1. Our students usually **take us to task** when it comes to defining social studies. When you tell them it is the study of man and his interaction with his total environment, they tell us they can not differentiate social studies from other subjects that share the same definition. We argue with them many a times. However, we often bail ourselves out by referring them to the definition in the textbook.

Take somebody to task probably means

You and your partner's reason for *Take somebody to task*

2. Even the iPad, the latest device from Apple Computer, is derived from solid-state semiconductor technology from the 1960s. The **rule of thumb** is that it takes several decades for a new technology to dominate a market. If it hasn't been invented yet, it probably won't make a difference in your life.

Rule of thumb probably means

You and your partner's reason for *Rule of thumb*

3. Over time, his tunnels have become a familiar space that no longer triggers his phobia, and he feels he has good reason to face his fear day after day. "The stuff I've found has been outrageous, totally **off the wall**," he says. "The work has been fascinating. Who would have dreamed I would find two almost complete buildings."

Off the wall probably means

You and your partner's reason for *Off the wall*

4. If they rely on public records, then they should be required to keep up with the changes in these records. They should also provide mechanisms for filing complaints if the online data are erroneous, and they should make proper corrections in a timely fashion, the way those who **keep tabs on** credit records are expected to do.

Keep tabs on probably means

You and your partner's reasons for the meaning of *Keep tabs on*

5. Twitter is an important part of who I am as a person and a professional. The amount of learning that takes place there is something that has made me who I am today. And the possibilities for students to learn in new and innovative ways can be endless-if you **take the plunge** and jump head first into the stream of real-time information.

Take the plunge probably means

You and your partner's reasons for the meaning of *Take the plunge*

6. Newcomers to this form of photography will shoot static photographs at first, which are ideal as wildlife records but have little pictorial interest. Once interest is peaked, a photographer will become interested in lighting, behaviors, etc. and then will produce better images. Luck and patience **come into play** when one advances to the serious photographer level.

Come into play probably means

You and your partner's reasons for the meaning of *Come into play*

7. Find your readers. Marketing is your final step to getting your essay published, and this is where you **shift gears** from writer to salesperson. While the next article in this issue (page 32) deals specifically with marketing, let me say a few things on this point.

Shift gears probably means

You and your partner's reasons for the meaning of *Shift gears*

8. To summarize, today's youths are facing many critical issues that often require social workers' assistance to resolve. It is important that we **keep abreast of** the latest information and developments in practice concerning children and adolescents so that we may provide the best available services.

Keep abreast of probably means

You and your partner's reasons for the meaning of *Keep abreast of*

APPENDIX E. TEXT-RECONSTRUCTION TASKS

Note: Example sentences in idiom-in-context tasks are extracted from the *Corpus of Contemporary American English* (COCA) (Davies, 2008).

Task One

Instruction: Each of the sentences below contains one incorrect use of the idioms you and your partner have discussed. Please work in pairs, find the errors and correct them based on your understanding of the meanings of the idioms. You also need to provide justifications for the corrections.

1. The program directors had received feedback from students in the past that weekly meetings were not relevant to them, which was **part and parcel of** as an indication that students were interested only in activities that supported their own projects. But the journals reflected something different: Students are quite likely to embrace activities that are not relevant to their work, as long as those activities are interesting.

2. We should make sure that the right procedure and methodology is used for preparing and characterizing the samples, measuring the parameters for example. This is **taken at face value** good laboratory practice. Keeping an eye can also mean to be on guard against rival groups who are all out to have access to one's findings and data and hence have an unfair advantage.

3. Up to now the country has been governed by exploiting the characteristic vices of Spanish society: what is needed is to build upon its virtues upon its personal and collective capacities, both of which are far from negligible. In the concert of nations, Spain is no **go off on a tangent** country, and if it chose to do so, it could rise to something higher than "a middle level country".

4. Similarly, in both countries participants asked for some kind of simulation activity (a role play or mock panel) where they were peppered with questions in order to learn a more effective way to **run-of-the-mill** with a microphone in your face sometimes you spit into that microphone and you don't mean to.

5. At this end of the continuum, it is not necessary to finish one task before moving on to something else. Thus, there is no such thing as an interruption; interruptions are not a nuisance. Further, if you are enjoying yourself, you **put the heat on** time and concentrate more about the here and now.

6. Lawyers on both sides say the demand for his deposition is more than just a routine procedure – it's an effort to **lose track of** the Marriott CEO in hopes of pressuring him into coming up with a settlement in the case.

7. African Arts does not **think on their feet** between what is “art” and what is not, or what qualifies as “acceptable” visual culture, expressive media, or cultural heritage. Phenomena such as postage stamps and advertising signage are not ordinarily considered to be “art,” yet they merit discussion and presentation, for they demonstrate the powerful role of visual culture in shaping social, political, and historical realities.

8. Yet, I wanted to keep a positive attitude throughout the lessons. So, for at least a minute or two (and several times during the lesson), we would **draw a line between** and they would get to “press” the keys the way they wanted to. It helped to keep the learning process fun for the student, maintain a high level of motivation, and create a break in the formal lesson structure.

Task Two

Instruction: Each of the sentences below contains one incorrect use of the idioms you and your partner have discussed. Please work in pairs, find the errors and correct them based on your understanding of the meanings of the idioms. You also need to provide justifications for the corrections.

1. Despite their knowledge and training about secondary trauma (Figley, 1995), caregivers in the Fein (2001) study did not take the time to debrief as often as they should have. One **off-the-wall** for responders is to serve only 3 to 4 hours or less on a critical incidence response shift and then be immediately allowed to debrief with trained personnel (Lerner et al., 2003).

2. Jean is known for “**rule of thumb**, arty and odd stuff “ sometimes using a Holga (a plastic toy camera with a plastic lens), making derivative images from 35mm slides, or shooting architectural images transformed into designs and using composition which emphasizes design, line and color, rather than a mere recording of a scene.

3. I am on a mountainside in Tangkoko Nature Reserve on the Indonesian island of Sulawesi, using a flashlight and radio-tracking device to **shift gears** a diminutive primate, a spectral tarsier (*Tarsius spectrum*). All of a sudden I hear high-pitched shrieks from higher up the mountain.

4. On the other hand, the Indian Supreme Court in this case did not merely **take** the government **the plunge** for its failures. Government experts essentially became advisors to the Court as it drove policy implementation forward.

5. There are many opportunities for primary care to be involved in the identification, diagnosis and management of AF in order to reduce the incidence and devastating consequences of stroke. There have been advances in our understanding of AF and clinicians need to **come into play** developments and to understand and use the range of guidelines and clinical management tools available to them.

6. We were doing UIL (University Interscholastic League), we were in a UIL contest this year and that's where I...I had to shift focus and try to find the students that were doing exceptionally well to send them to the UIL contest. Number sense, math, spelling, storytelling, oral reading, poetry, and it was amazing when I had to **keep tabs on**. It was like, wow. And then trying to select only a few.

7. I take the same approach in my classroom by composing alongside my students. If you have not composed before, **take to task**. Start improvising at a piano, or experiment with a sequencing or loop-based music program.

8. A fuel-efficient alternative-the diesel engine-has largely been overlooked as a means of curbing American cars' appetites. A number of factors have **kept abreast of** in recent years that make light-duty diesels a viable alternative to conventional gasoline engines. Modern direct-injection diesels are different engines from the smoky, noisy, and smelly diesels of 30 years ago.

APPENDIX F. IMMEDIATE AND DELAYED POSTTESTS

Note: The definitions of the idioms are taken and adapted from *Longman Dictionary of Contemporary English Online* (www.ldoceonline.com), *the Free Dictionary* (www.thefreedictionary.com), and *Merriam-Webster Online* (www.merriam-webster.com).

Immediate posttest I

Part I instruction: Match the idioms with their definitions.

- A. to start talking about an unrelated topic
 - B. to think and react quickly
 - C. an essential or integral component
 - D. to accept that something is exactly what it appears to be
 - E. not special or outstanding; average.
 - F. to forget something
 - G. to distinguish or differentiate between two things.
 - H. to try to persuade or force someone to do something
-
1. Think on one's feet _____
 2. Take something at face value _____
 3. Run-of-the-mill _____
 4. Part and parcel of _____
 5. Go off on a tangent _____
 6. Draw a line between _____
 7. Put the heat on _____
 8. Lose track of _____

Part II instruction: Write down the meaning of the idioms in English.

1. Lose track of _____
2. Put the heat on _____
3. Draw a line between _____
4. Go off on a tangent _____
5. Part and parcel of _____
6. Run-of-the-mill _____
7. Take something at face value _____
8. Think on one's feet _____

Short-term delayed posttest I

Part I instruction: Match the idioms with their definitions.

- A. to think and react quickly, especially in a situation where things are happening very fast
- B. to suddenly start talking or thinking about a completely new subject
- C. an important part of something that cannot be avoided
- D. to believe that the way things appear is the way they really are
- E. ordinary and not special or exciting in any way
- F. to distinguish or differentiate between two things
- G. to lose contact with someone; to forget where something is
- H. to pressure someone; to threaten someone to achieve something

- 1. Lose track of _____
- 2. Put the heat on _____
- 3. Draw a line between _____
- 4. Go off on a tangent _____
- 5. Part and parcel of _____
- 6. Run-of-the-mill _____
- 7. Take something at face value _____
- 8. Think on one's feet _____

Part II instruction: Write down the meaning of the idioms in English.

1. Draw a line between _____
2. Go off on a tangent _____
3. Lose track of _____
4. Put the heat on _____
5. Take something at face value _____
6. Think on one's feet _____
7. Part and parcel of _____
8. Run-of-the-mill _____

Immediate posttest II

Part I instruction: Match the idioms with their definitions.

- A. a general principle or rule based on experience or practice, as opposed to a scientific calculation.
- B. to remain up to date with
- C. to watch a person or a situation carefully so that you always know what they are doing or what is happening
- D. to decide to start doing something new or difficult.
- E. to criticize or blame someone for something they have done wrong
- F. to change the topic
- G. strange or very different
- H. to become important

1. Keep tabs on _____
2. Rule of thumb _____
3. Take somebody to task _____
4. Shift gears _____
5. Off the wall _____
6. Take the plunge _____
7. Come into play _____
8. Keep abreast of _____

Part II instruction: Write down the meaning of the idioms in English.

1. Keep abreast of _____
2. Come into play _____
3. Take the plunge _____
4. Off the wall _____
5. Shift gears _____
6. Take somebody to task _____
7. Rule of thumb _____
8. Keep tabs on _____

Short-term delayed posttest II

Part I instruction: Match the idioms with their definitions.

- A. to stay up-to-date with
 - B. a method of procedure based on experience or common sense and not intended to be scientifically accurate
 - C. to start to play a role, to become an important factor and have an effect
 - D. to criticize someone angrily for something that they have done
 - E. to observe carefully over time
 - F. very unconventional, bizarre, or unusual
 - G. to begin an unfamiliar venture, especially after hesitating
 - H. to suddenly change what you are doing
-
1. Off the wall _____
 2. Take the plunge _____
 3. Come into play _____
 4. Keep abreast of _____
 5. Keep tabs on _____
 6. Rule of thumb _____
 7. Take somebody to task _____
 8. Shift gears _____

Part II instruction: Write down the meaning of the idioms in English.

1. Keep tabs on _____
2. Rule of thumb _____
3. Take somebody to task _____
4. Shift gears _____
5. Off the wall _____
6. Take the plunge _____
7. Come into play _____
8. Keep abreast of _____

APPENDIX G. STIMULATED RECALL PROTOCOLS

Directions: While watching the screen recordings of your online collaboration with your partner on the meaning of the eight idioms, you are encouraged to reflect on what you were thinking about at a specific point of time. I will pause the recordings for the moments of interaction that are of interest, and you also have the freedom to tell me more information by pausing the recordings yourself. The chat transcripts and the English idiom learning tasks are at your disposal for your reflection. I will also ask you to explain the meaning of the idioms to me after the recall.

APPENDIX H. POST-TASK SURVEY

Instruction: Please answer the following questions about your experience of and feelings about collaborating with your partner on the English idioms learning activity through text-based online chat. Please write your answers truthfully and completely to the best of your knowledge. Your answers will be kept confidential and only be viewed by the teacher.

1. I enjoyed working with a partner on the meaning of the English idioms.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

2. Working with a partner helped me guess the meaning and find the errors of the idioms faster.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

3. Working with a partner helped me guess the meaning and find the errors of the idioms more correctly.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

4. Discussions with my partner about the idioms helped me understand their meaning.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

5. Discussions with my partner about the idioms helped me remember their meaning.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

6. Working with a partner on the meaning of the idioms was more effective than working on my own.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

7. I enjoyed chatting with my partner online about the meaning of the idioms.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

8. I felt confident chatting with my partner online about the meaning of the idioms.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

9. I felt comfortable explaining what I knew about the idioms to my partner in online chat.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

10. Guessing the meaning of the idioms from the context and correcting the errors was challenging for me.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

11. I was concerned that my partner's explanations might be incorrect.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

12. My communication with my partner was more effective in online chat than in face-to-face communication.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

13. While I was answering the questions on the tests, I thought about the meaning of the idioms that I had discussed with my partner.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

14. It was easier for me to notice the idioms when I was chatting online with my partner.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

15. I found the English idiom learning tasks quite interesting.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

16. In completing the English idiom learning tasks, I gained a lot of knowledge about the meaning of the idioms.

Strongly Disagree Disagree Slightly Disagree Slightly Agree Agree Strongly agree

Thank you for your answer!

APPENDIX I. INTERVIEW QUESTIONS

1. How do you feel about working with your partner on the English idiom learning tasks? What worked well? What were the difficulties?
2. What do you think of your interaction with your partner during the collaboration on the English idiom learning tasks? Do you think the communication was successful? Why or why not?
3. What was your experience of text-based online chat? Do you like it? Do you think it was helpful for you and your partner to complete the tasks?
4. Do you think text-based online chat helped you understand the idioms? If yes, in what way?
5. Do you think text-based online chat helped you remember the idioms? If yes, in what way?
6. What do you think are the strengths and weaknesses of using text-based online chat for the tasks, compared with face-to-face communication? Please explain.

APPENDIX J. INSTITUTIONAL REVIEW BOARD APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 9/4/2014

To: Xuan Teng
203 Landscape Architecture

CC: Dr. Carol A Chapelle
339 Ross Hall

From: Office for Responsible Research

Title: The Effects of Homogenous and Heterogeneous Collaborative Dialogue during Tasks in Synchronous Computer-Mediated Communication on the Acquisition of English Idioms

IRB ID: 14-219

Approval Date: 9/2/2014 **Date for Continuing Review:** 9/1/2016

Submission Type: New **Review Type:** Full Committee

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- **Use only the approved study materials** in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.
- **Retain signed informed consent documents for 3 years after the close of the study**, when documented consent is required.
- **Obtain IRB approval prior to implementing any changes** to the study by submitting a Modification Form for Non-Exempt Research or Amendment for Personnel Changes form, as necessary.
- **Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences** involving risks to subjects or others; and (2) **any other unanticipated problems** involving risks to subjects or others.
- **Stop all research activity if IRB approval lapses**, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- **Complete a new continuing review form** at least three to four weeks prior to the **date for continuing review** as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Please be aware that IRB approval means that you have met the requirements of federal regulations and ISU policies governing human subjects research. **Approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **IRB approval in no way implies or guarantees that permission from these other entities will be granted.**

Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 1138 Pearson Hall, to officially close the project.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.